

## **Paths to viability: transnational strategies among Ghana's internet cafe entrepreneurs<sup>1</sup>**

### **Abstract**

This paper uses comparative analysis to investigate the relative importance of different factors in the formation and viability of the internet cafes that are responsible for most local internet access in poor countries. It is based on a study of Ghanaian commercial internet cafes, the majority located in the country's remote northern regions, with a second group of cafes studied in the capital city, Accra. The findings presented here demonstrate that both migrant and nonmigrant cafe owners in Ghana are using transfers from abroad of all kinds, especially physical capital and knowledge, to create and sustain their businesses. They also show that for those whose presence in the sector is marginal and precarious, i.e. the smallest businesses and those belonging to younger and poorer entrepreneurs, these transfers represent an essential strategy in maintaining a viable enterprise.

### **Introduction: the uses of international mobility among internet cafes**

A huge amount of policy attention has been directed towards what is termed the 'digital divide': the fact that in most poor countries there is little or no connectivity and the flow of information and communications is severely limited. This work is often framed as consisting fundamentally of a poverty agenda, with the underlying assumption that if the 'divide' can be 'bridged', there will be less poverty and inequality (UNCTAD 2008). However, there is little or no evidence that bridging the digital divide will reduce poverty, and some that it may in fact increase within-country inequality (Van Dijk 2000, Robinson *et al.* 2003). Furthermore, many of the real processes and benefits of diffusing information and communication technology in poor countries may be closely tied to international mobility, something that has not been considered by policy makers.

---

<sup>1</sup> For guidance and input to this paper I am indebted to my supervisors at the Institute of Development Studies and the University of Sussex, and for feedback and corrections to my QCA methodology Benoît Rihoux of UC Louvain. The study was conducted with invaluable assistance from several research assistants in Ghana, especially Latif Issah, who acted as co-researcher for the Northern and Upper West regions in this study.

The demographics of Information and Communication Technology (ICT) use are, however, changing in the developing world. As ICT infrastructure is slowly extended into poorer areas, internet cafes become an important players in the provision of connectivity. However, empirical studies have so far mainly focused on the extension of connectivity via nonprofit and donor organisations, so that local, small-scale commercial provision has been neglected.

These small-scale entrepreneurs negotiate various challenges in providing connectivity, chiefly in the areas of infrastructure, policy and resources. This paper deals with the resource gap, and analyses the way internet cafe owners are using international mobility and transnational social capital as a strategy to access what they need. Using data from a survey of internet cafes in poor and remote areas of Ghana, it traces the means by which entrepreneurs acquire the knowledge, hardware, software and capital needed to start an internet cafe, and analyses the contribution of these various strategies to the viability of the businesses after formation.

Knowledge acquisition without physical co-presence has been explored, amongst others, by Polanyi (1966) as tacit knowledge, a concept later developed by Blackler (2002), who suggested a distinction between ‘embodied’, ‘embrained’, ‘encultured’ and ‘embedded’ knowledge, positing that the first two types can be gained by being in the presence of the teacher or practicum, but the latter two are ‘grounded in shared understandings... and are socially situated’. This view implies that knowledge and skills cannot be learned without cultural embedding, i.e. a level of integration beyond the purely economic, on the part of the migrant. Williams (2007) applies this thinking to migration, and suggests that wherever migrants are involved in productive activity in the destination country, there is the potential for knowledge transfer.

The paper will argue that physical mobility, international networking and remittances play a central role in the formation of small ICT businesses in poor and remote areas, and that facilitating these international activities and connections among less-resourced and lower-profile ICT entrepreneurs deserves a place in the international development policy agenda.

## **Background**

The internet cafes that are the chief providers of internet connectivity on a local level in West Africa face a number of challenges. These can be broadly categorised into infrastructure, policy and market gaps. Infrastructural problems consist mainly of a lack of access to credit in this fledgling industry due to an underdeveloped financial infrastructure; the lack of a communications backbone in the north of the country; unreliable electricity service and even less reliable broadband provision. During the six months

while this research was conducted, the cafes studied lost their broadband signal for an average of three days a week, and sometimes for two weeks or more at a time, without compensation from the provider.

Furthermore, the lack of financial infrastructure in Ghana also means that credit cards are virtually unknown among non-elites, so that purchasing software such as antivirus programs is impossible. Hardware is also hard to come by, especially in the north: new computers are subject to heavy import taxes, so that 1997-vintage computers with Pentium II processors are standard, bought second or third-hand at the national port 700km away.

Knowledge and skills are equally hard to acquire. The Accra area is seeing an upsurge in private IT colleges, but the regions studied in the north have an average literacy rate of 29%, ranging to as low as 9% in some of the places covered by this study (Ghana census 2005). The northern three regions (the Upper East, Upper West and Northern), comprising about half the country's territory, do not have a single institution teaching commercial cafe operators how to network, program or repair computers.

However, Ghana's user-to-subscriber ratio was 28:1 in 2007 (ITU 2008), compared to the United States' 3:1, suggesting that most people are relying on shared computers, most probably in internet cafes, for connectivity. Given the poor availability of ICT equipment, resources and knowledge outlined above, these cafes are presumably sourcing them from elsewhere through the mobilisation of social capital via transnational networks. The next section will outline the methodology used to collect data on these transfers of knowledge, software and hardware, and the businesses where they are occurring.

## **Methodology**

For the purposes of this study, internet cafes were defined as commercial establishments offering internet browsing on computer terminals. Thus the group surveyed does not include government-funded telecentres, nor any form of mobile technology.

This study faced two major challenges in terms of data collection. First, finding the businesses in question. This was problematic due to the lack of a sampling frame: the last survey to categorise small-to-medium enterprises (SMEs) in Ghana was conducted by the World Bank in 1997, when internet cafes could not yet be distinguished as a group of businesses, and internet cafes in the North, like most enterprises there, operate mainly as informal businesses. Second, the difficulty of gathering accurate data on profit, expenditure and revenue, given the small size of the businesses and the frequent lack of standard business skills and practices among entrepreneurs.

The approach adopted was a cross-sectional survey to gather data on different levels and in a variety of locations. First, a census<sup>2</sup> was conducted of the internet cafes across the entire northern area of Ghana, comprising the Upper East, Upper West and Northern regions. The study gathered data in 68 cafes operating in the region at the time, defining an internet cafe as any for-profit enterprise where customers could pay to browse the internet. Cafes were located by a process of working outward from the regional capitals, using information from local cafe owners to find other cafes and check that all those known had been included. The research was conducted with the help of local assistants in each area who worked in the sector and could help locate each of the cafes and translate where necessary.

To find the rural and remote cafes, the main criteria used were the availability of electricity and the presence of a customer base, which ruled out the smallest and most remote settlements. Each remote cafe was asked which was its nearest competitor, and so on. Rural people were also asked where they went to get online, and whether they had a choice of locations.

Finally, a further group of 27 more cafes was surveyed in two subdivisions of the capital city, Accra: Adabraka and Kokomlemle. This comparison group was included in order to explore whether differences in business outcomes were based on location (i.e. proximity to better connectivity, more international culture and sources of imports), or whether internet cafes all over Ghana were subject to the same challenges and opportunities. Interviews were conducted in English, with the help of a local translator where necessary. The survey contained three sections: the international mobility history of the owner and manager or partners and details of any family, friends and associates who sent resources from overseas; the assets, expenditure and profits of the business; and membership in any associations relating to the business. Owners were also interviewed in greater depth about their business problems and problem-solving strategies, and their perceptions of their relationship to the global IT industry.

The second problem, that of the reliability of the data gathered, was addressed by a mixed methods approach that combined a formal, structured questionnaire for purposes of comparability and unstructured interviews, both to probe entrepreneurs' understanding of the financial aspects of their business, and to go deeper into their migration history and the international aspects of their enterprise.

The data was first subjected to exploratory analysis to determine the key relationships between groups according to age, size of business and uses of international mobility and networks. Next, these findings were used to inform a fuzzy-set Qualitative Comparative Analysis (Ragin 2008). As a non-probabilistic analytical method, QCA allows the researcher to treat the cases studied as constellations of strategies and

---

<sup>2</sup> No census is completely accurate. It was later discovered that two cafes had been missed, because the owner had actively avoided identification by this study. Awareness of these missing cases, however, suggests that overall the study can be argued to be a census of the northern cafes.

characteristics, each of which may be either necessary or sufficient, alone or in combination, for the outcome in question. It traces the effects of particular combinations of factors, and offers ways to deal with a lack of diversity in the data.

Going beyond simple statistical analysis, the main advantage of QCA as a method is that it makes it possible to investigate the effect of factors both alone and in combination – known as ‘conjunctural causation’ (Ragin 1987) – and, in contrast to statistical modelling, retains a case-study level of detail throughout the process, constantly referring back to the characteristics of individual cases in the search for combinations of causal factors. A second advantage is that QCA incorporates an assumption of equifinality – that different combinations of factors can lead to the same outcome – and therefore enables the researcher to explore multiple configurations in a non-exclusive way. QCA is designed to help researchers understand diversity in their data,<sup>3</sup> and is appropriate where the researcher has a detailed level of knowledge of his or her cases that will help to calibrate the models used as finely as possible.

Building a fuzzy-set QCA model involves developing a hypothesis about which conditions are important in explaining a particular outcome and calibrating the variables accordingly into fuzzy ‘membership sets’ denoting membership, or lack of it, in a particular condition (in this case, an example might be the set of ‘internationally networked entrepreneurs’). The values of each case’s membership in the set might be any number between 0 (full non-membership) to 1 (full membership). The fsQCA software (which can be downloaded from the University of Arizona<sup>4</sup>) allows the researcher to set values for 0, 1 and a 0.5 threshold point, and then automatically calculates where each case falls along the continuum. Further details of the method’s assumptions regarding causality and the measures of sufficiency, necessity and consistency can be found in Ragin (1987, 2000), and examples of its use as part of a mixed-methods strategy for the analysis of data to do with international mobility include Takenoshita (2009) and Mengeot (2003).

### **Exploratory analysis**

Despite the relative remoteness of the northern group in particular, the exploratory analysis shows that a comparatively large share of those surveyed had migrated internationally (see table 1). 66% of the

---

<sup>3</sup> QCA software asks the researcher to set their target level of diversity, offering either to list every configuration leading to the outcome in question (referred to as a ‘most complex’ solution), or to reduce this to the set of configurations associated with the greatest number of positive outcomes (the ‘most parsimonious’ solution).

<sup>4</sup> The software is available at <http://www.u.arizona.edu/~cragin/fsQCA/software.shtml>

business owners or partners had travelled outside Ghana, and 43% had been outside Africa, a much higher rate than Ghana's 0.3% international migration rate according to official statistics.<sup>5</sup>

Table 1. Rate of international mobility among the businesses studied

<i>International mobility (per business)</i>	<i>Number</i>	<i>%</i>
No international mobility	5	5.2
Internal mobility only (of more than 6 months)	28	29.5
International mobility within Africa (no time period specified)	21	22.1
International mobility beyond Africa (no time period specified)	41	43.2

Destinations beyond Africa were principally the US and Europe, but many also travelled, or were aspiring to travel, to China and other Asian destinations. This travel was generally for trade or work reasons. All those who had not yet migrated expressed the desire to do so in the future. The respondents who had migrated had almost all done so independently of any organisation or programme. A few had been deported, but most had returned voluntarily for a wide variety of reasons. None had been part of a formal return programme.

The main hypothesis of this project, that migration would have a positive impact on IT entrepreneurs' businesses, is not initially clearly confirmed by the data. The internationally mobile as a whole, within the group studied, do not show a higher level of expenditure, profit or return on investment (ROI) than nonmigrants. Given the potential for selectivity bias common to migration studies and explored by Gibson *et al.*, (2006), we might expect to see migrants doing better overall, and attribute this to a higher level of starting capital, both human and financial. However, this does not appear to be the case here.

When we look at different types of mobility, however, differences start to emerge. Those who have worked outside Africa make a higher net profit than those who have not, with a median of 219.5 cedis per month (USD 152.77) to the nonmigrants' 115 (USD 80.04) (*two-sample t* (*df* 84) = 1.5677, *p* = 0.1). Those who had migrated outside Africa were also more likely to keep accounts ( $\chi^2(1, N = 95) = 7.10, p < .01$ ), an important factor in building a business beyond the micro-level (Frese 2000).

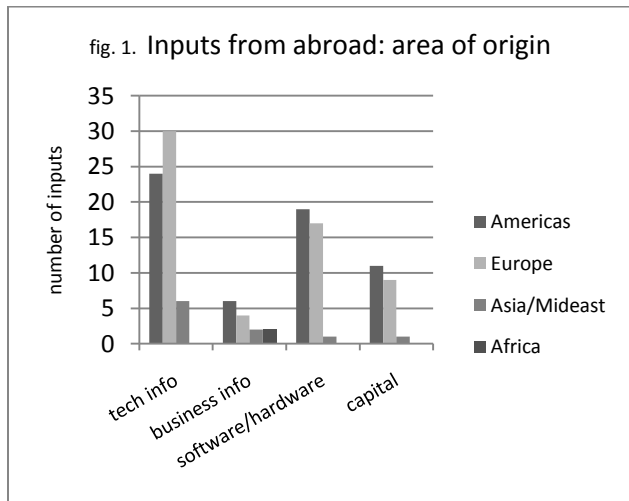
Overall, it appears that international mobility works in opposite ways for younger versus older entrepreneurs, who also tend to have different levels of resources. For larger-scale entrepreneurs,

---

<sup>5</sup> Average migration rates were compiled according to Ghana Immigration Service 2006-2009 data on passport applications by region. One caveat regarding the statistics on migration outside Ghana is that it is estimated by the Ghana Immigration Service that 95% of international migration within the region (ECOWAS countries) remains unregistered by official statistics (interview with GIS, 12.9.09).

travelling to areas with more sophisticated IT industries is a way to source equipment and knowledge that they then use upon return in their businesses. In contrast, younger or less educated entrepreneurs are more likely to work abroad if they do travel, or to use the international mobility of their associates to access knowledge and resources.

As can be seen from figure 1 below, all the businesses were receiving significant numbers of inputs from abroad. Almost all come from outside Africa, primarily from the Americas and Europe, the two global centres of the IT industry.



It was clear from the data and the interviews conducted that capital is the clearest determining factor in these businesses' survival, and international mobility and remittances are primarily used to answer this need. The group with the least capital (the young and/or those without a high school qualification) benefits most from migrating in order to work ( $\chi^2(1, N = 95) = 3.14, p = 0.08$ ).<sup>6</sup> For businesses run by this 'young/uneducated' group alone, migrating outside Africa to work is associated with a significant return on investment. These entrepreneurs, who constituted a third of those who migrated outside Africa to work, had a significantly higher mean ROI<sup>7</sup> than their older counterparts (0.78%, compared to 0.33%), (*two-sample Wilcoxon rank-sum, z=1.63, p=0.10*).

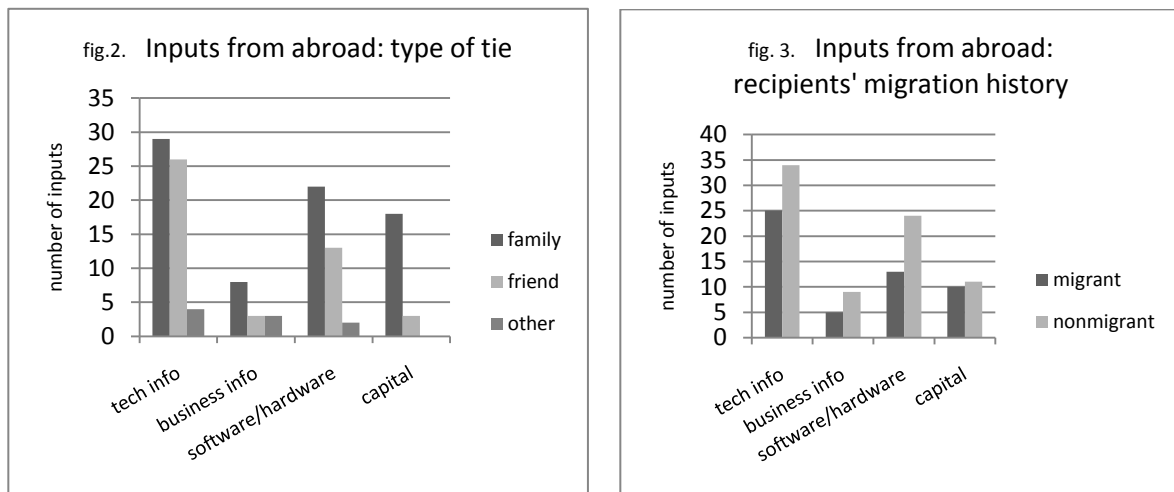
This younger group was more likely to be running businesses less than two years old ( $\chi^2(1, N = 95) = 4.04, p = 0.04$ ). This meant that they had entered the sector in the boom immediately following the introduction of broadband – between 2004 and 2007 depending on the area – just when competition became fiercest and entrepreneurial skills most important. They were also more likely to be running the

<sup>6</sup> 'Young' here denotes under 30, a threshold based on interviews with older businesspeople who were asked at what age a business-owner is considered mature in terms of social status and other related factors such as access to credit.

<sup>7</sup> ROI here is calculated as monthly net profit as a percentage of expenditure.

smallest businesses, in terms of expenditure ( $\chi^2(1, N = 95) = 4.68, p = 0.03$ ), and so were at a disadvantage in a sector that privileges capital and hardware over skill.

The 56.8% of entrepreneurs surveyed who lacked the means to migrate (access to visas being the principal obstacle), reported using other strategies to acquire the equipment, skills and capital they needed. In these cases, migration was indirect – the migrant was a family member (the most usual source of remittances), a friend or associate, or even a visitor to Ghana whom they had only met briefly such as a foreign volunteer or NGO worker (see fig. 2). Most reported gaining technical knowledge, in particular from people they had only met online.



The entrepreneurs making the most use of these long-distance contacts (as seen in figs. 2 and 3) are the least well-resourced. The data show that the smallest businesses are most likely to be receiving inputs of all kinds from abroad (*Fisher's exact, p = 0.03*) as are the newest enterprises (*Fisher's exact, p = 0.08*). Similarly, we can see that the youngest and least educated entrepreneurs are least likely to have migrated outside Africa, ( $\chi^2(1, N = 95) = 10.22, p = 0.001$ ) but are nevertheless just as likely to be receiving inputs from there as older entrepreneurs (*Fisher's exact, p = 0.354*).

Thus while the older entrepreneurs surveyed are more likely both to have travelled and to have worked outside Africa, which correspondingly makes them more likely to meet and use contacts from outside the continent, the younger group, despite their lower rate of migration, is just as likely to have such contacts, and to be using them to source inputs from abroad.

Fig. 2 shows that these transfers are occurring *as much via friends and associates as via family members*, indicating the value of 'weak ties', i.e. non-household ties (Granovetter 1973) to these enterprises. While



capital transfers are primarily sourced from ‘strong’ family ties, other types, particularly those of technical knowledge, show a strong presence of international contacts who are not relatives.<sup>8</sup> Finally, fig. 3 shows a finding that is quite counter-intuitive, yet is supported by the interviews: these transfers from abroad are in fact accruing primarily *to those who have never migrated*. The next section will use QCA to analyse the effects of these factors in combination with those dealt with above.

### **fsQCA analysis: the comparative importance of mobility**

The analysis above demonstrates that mobility is associated in important ways with business outcomes. However, the initial exploration detailed above reveals that several factors are notable for their absence: the literature on small businesses in Africa suggests that entrepreneurs’ education level, access to credit (formal or informal) and professional networks should all be important in determining the viability of a business (e.g. Frese 2000; Nziramasanga 2010), but none of these emerge as drivers of viability.

To pursue this analysis further, four ideal types were first created based on hypotheses about the factors making businesses viable. These were then used to generate QCA models. The first two are based on the process of breaking into the internet cafe business, as represented by having a cafe that is less than 3 years old. These new cafe entrepreneurs constitute 70% of the population surveyed. Within this group of new cafes, there are two types of entrepreneur. First, those who have not travelled outside Africa (ideal type 1), and are therefore making the most of local factors to get a business advantage – mainly (according to the interviews conducted) building status in the community that will allow them to gain local allies and access credit to expand their businesses and survive shocks. The second group of cafes (ideal type 2), which constitute 55% of businesses less than three years old, are those whose owners have travelled outside Africa, or who have contacts who do so, and who are thus drawing resources and knowledge from more technologically advanced areas.

The second pair of scenarios involves the likelihood of a business breaking even. Here, similarly, the entrepreneurs are grouped into an ideal type (#3) where they are using local resources to make their businesses viable, and another (#4), where the owner employs international mobility and contacts in order to gain a competitive advantage. These four ideal types were translated into four models, as demonstrated below.

*Model 1: Businesses established less than 3 years ago, without mobility as a factor*

---

<sup>8</sup> The ‘other’ category refers to someone who was described by the interviewee as a professional associate or someone they had only met briefly, rather than someone with whom they had a relationship of trust.

This model is designed around an ideal type where new entrants to the field are using existing resources to set up their enterprises. Thus the factors included are having at least one pre-existing business, having another salaried job (i.e. one providing security and possibly savings to invest productively), access to formal credit, and access to informal credit. All the variables used in this first model are dichotomous, i.e. binary, in their construction. This is because the process of fsQCA analysis allows for the use of 0-1 as well as fuzzy variables, taking 0 and 1 in this case as expressions of full non-membership and full membership respectively.

Table 2. Variables used in model 1

Variable	Type	Description	Rationale
Business not older than 3 years	Dichotomous	OUTCOME VARIABLE	Defines a group of new entrants to the sector.
Other enterprise	Dichotomous	Is the business part of a group owned by the same person	Those who are already doing business are looking for opportunities in new sectors
Other salaried work	Dichotomous	Does the respondent/owner have an unrelated salaried position	Public sector workers may seek to grow their savings through entrepreneurship
Formal credit	Dichotomous	Has the business ever benefited from a bank loan	Literature suggests formal credit is a key factors in internet cafe formation
Informal credit	Dichotomous	Has the business ever benefited from another type of loan from an organisation	Same rationale as formal credit

The next step is to create a ‘truth table’ (table 3 below) containing every possible logical combination of the variables used in the model, and the outcome with which each is associated. The last 3 rows here are ‘logical remainders’, combinations that are possible but were not observed. These logical remainders were included in the analysis (by the use of the most parsimonious solution possible in the logical minimisation process) because case knowledge suggested that they were empirically possible.

Table 3. Truth table: model 1

Other enterprise	Other salaried	Formal credit	Informal credit	Number	Outcome = not older than 3 years	Consistency <sup>9</sup>
1	0	1	1	1	1	1.000000
0	1	0	1	1	1	1.000000
0	0	1	1	1	1	1.000000
1	1	1	0	2	1	1.000000
0	1	1	0	3	1	1.000000
1	1	0	0	6	1	0.833333
1	0	0	1	5	1	0.800000

<sup>9</sup> The term ‘consistency’ in this table (also explained in the ‘sufficient conditions’ analysis below) refers to the extent to which a causal combination is representative of the argument being tested – more exactly, ‘the sum of the consistent membership scores in a causal condition or combination of causal conditions divided by the sum of all the membership scores in a cause or causal combination’ (Ragin 2005). For further explanation see Skaaning (2005); Ragin (2008: 87-121).

0	1	0	0	14	1	0.785714
0	0	0	0	26	1	0.769231
1	0	0	0	24	0	0.583333
0	0	0	1	4	0	0.500000
0	0	1	0	4	0	0.500000
1	0	1	0	2	0	0.500000
0	1	1	1	0	?	
1	1	0	1	0	?	
1	1	1	1	0	?	

The truth table displays the combinations of conditions that are sufficient for the outcome to occur. Table 4 shows the results of the test of *necessity*, i.e. whether any one factor alone can consistently explain the outcome. In this case, the fact that no condition displays a high consistency score (of 1.0, or close to this level) denotes that none is a necessary condition. Consistency, in the matter of necessary conditions, is a measure of the extent to which the cases of the outcome (in this case, a business being a new entrant to the field) are a subset of cases that feature a particular condition (e.g. the entrepreneur having a pre-existing enterprise, as in line 1 of table 4). Coverage, when dealing with this question of necessary conditions, is a measure of relevance, and shows the extent to which cases showing the condition are a subset of the cases that show the outcome in question (i.e. being less than three years old). The results shown in table 4 indicate that none of the conditions tested is necessary for the outcome in question. This means that the analysis, instead of examining a single factor, should proceed to the next stage: looking at which combinations of factors are sufficient to produce the outcome.

Table 4. Analysis of necessary conditions: Model 1

<b>Outcome variable: Business not older than 3 years</b>		
<b>Conditions tested</b>	<b>Consistency</b>	<b>Coverage</b>
other enterprise	0.402985	0.675000
other salaried	0.328358	0.846154
formal credit	0.149254	0.769231
informal credit	0.134328	0.750000

After this test for necessity, the model is then run as seen in table 5. The model produces a *solution term* made up of one or more *solution factors*, or combinations of conditions, that determine whether cases display the outcome in question. The ‘consistency cut-off’ is a feature of fuzzy-set analysis which allows the researcher to specify the level of consistency acceptable for inclusion in the solution. The solution

factors are listed in the table below, and use Boolean syntax where \* denotes the logical AND, while ~ denotes the logical NOT.

When analysing *sufficient conditions*, the tests of consistency and coverage operate differently. In this part of the analysis, consistency is used to measure the extent to which the combination in question is a subset of all the cases displaying the outcome (the business being less than three years old). In contrast, coverage (as noted before, a test of the relevance of a particular combination of conditions) is a measure of the extent to which the cases displaying the outcome are a subset of those displaying that combination of conditions. (For a more detailed explanation, see Ragin 2006). Thus, a solution factor’s consistency level speaks to its contextual accuracy, while its coverage level denotes its empirical relevance.

Table 5: model 1 solution factors

Model 1	Business less than 3 years old =f(other enterprise, other salaried, formal credit, informal credit)				
Consistency cutoff:	0.769231				
Results:		Number of cases	Raw coverage	Unique coverage	Consistency
Solution factors:	1. Other salaried	20	0.328358	0.164179	0.846154
	2. Other enterprise * informal credit	6	0.074627	0.059701	0.833333
	3. Formal credit * informal credit	2	0.029851	0.014925	1.000000
	4. ~Other enterprise * ~formal credit * ~informal credit	20	0.462687	0.298507	0.775000
Solution coverage:	0.716418				
Solution consistency:	0.813559				

These solution factors can be interpreted as constituting four types of new entrant to the internet cafe sector. These types are numbered 1-4 in the table above. First, the part time entrepreneur (‘other salaried’ - someone with an unrelated public-sector job, comprising 27% of respondents), who uses the safety net of permanent employment to engage in a riskier enterprise such as an internet cafe using their savings from this other employment. Second, the entrepreneur with more than one small business – a finding that aligns with what Kiggundu (2002) termed the ‘octopus structure’ of enterprises. These two solution factors also show that a strategy of diversification, in terms of a salaried job, another enterprise, or both, is an important factor in keeping businesses alive. This is probably because capital is circulated among the businesses owned by an entrepreneur, cushioning weaker ones from shocks so that they can survive the risky startup period. This result may also reflect the practice of entrepreneurs’ self-branding, observed from interviews, where an internet cafe serves as a way to signal one’s status and effectiveness across a range of businesses.

The third solution factor denotes those with access to both formal and informal credit (a combination so rare only two enterprises shared it), possibly identifying those with the highest status. Finally, the fourth type is composed of cases involving neither another business nor an official source of credit, of which 9 were from Accra and 33 were from the North. This final group confirms that the conditions included in this model do not cover all the cases showing the outcome, i.e. that there are several possible paths to having a newly-formed enterprise that do not entail migration. This fourth path, involving none of the factors central to this model, comprises as many cases as the first, suggesting that this last group requires a different model to describe it.

*Model 2: businesses younger than 3 years involving mobility*

A second model was run to explore the idea that this fourth group from model 1 is using other means than credit, stable income or local standing to advance their business interests. The outcome variable is the same: being in the sector less than three years. This time, the factors included were those suggested by the exploratory analysis, according to the ideal type involving entrepreneurs who are young and/or uneducated, lack status, and are therefore trying to use international resources to replace those that are lacking locally. As can be seen from table 6, this model uses a combination of fuzzy and dichotomised variables: the young/uneducated group is captured by a dichotomised variable, while the potential solution factors (having a high number of non-Ghanaian contacts outside Africa, receiving inputs from outside Africa, being young or uneducated, and migrating outside Ghana) are expressed as fuzzy sets. The migration variable is calibrated to give greater importance to migrating to an OECD country outside Africa, based in particular on recent work by de Vreyer et al. (2010) which found significant returns to this type of migration in terms of entrepreneurial productivity. For an explanation of the theory behind, and the process of, calibrating fuzzy variables, see Ragin (2010).

Table 6: Variables used in Model 2

<b>Variable</b>	<b>Type</b>	<b>Description</b>	<b>Fuzzy set calibration</b>	<b>Rationale</b>
Business not older than 3 years	Dichotomous	OUTCOME VARIABLE	N/A	Defines a group of new entrants to the sector.
Migration	Fuzzy	Set of cases involving long-distance migration	Fully in = 3 (outside Africa), Neither in nor out = 1.9 (outside Ghana but within Africa), Fully out = 0.1 (internal or no migration).	Migrants who travel are more exposed to the potential commercial benefits of internet use, those going outside Africa most of all. (N.B. the use of the 0.1 threshold weights the variable so that internal migration is taken into consideration).
Non-Ghanaian contacts	Fuzzy	Set of cases with a high number of	Fully in = 4.9 (the maximum observed value),	Even if contacts are not yet contributing to the business,

		non-Ghanaian contacts overseas	Neither in nor out = 1.9 (more than one contact suggests purposeful international networking), Fully out= 0 (no contacts abroad).	many businesses are seeking them in the hope of future contributions.
Foreign inputs	Fuzzy	Set of cases that receive significant resources from overseas	Fully in = 1.9 (2 benefactors abroad suggests significant mobilisation of social capital), Neither in nor out = 0.9 (one contact may be a coincidence), Fully out = 0 (no contacts abroad contributing to the enterprise).	Interviews suggest entrepreneurs are seeking to gain and use social capital via international networking
Young/uneducated	Dichotomous	Is the business run by someone young and/or without a high school education	N/A	Those with relatively low social status will find it harder to do business in conventional sectors and may be seeking new venues for entrepreneurship

The truth table produced for this model is shown in table 7 below. The last row of the table, as in the previous model, represents a *logical remainder* (Ragin and Sonnett 2005): a combination that is possible but is not empirically observed. This logical remainder is excluded from the eventual solution term, since it seems unlikely to occur given the case knowledge involved. The truth table (7, below) shows that being young and/or uneducated is common to most of the cases of new entrants to the sector. The other factors that combine with this to produce the ‘breaking even’ outcome vary considerably, suggesting that strategies of mobility and of using contacts abroad are used both in combination and separately.

Table 7 Truth table: model 2

Migration	Non-Ghanaian contacts	Foreign inputs	Young/uneducated	Number	Outcome = not older than 3 years	Consistency
0	1	0	1	5	1	0.947020
0	1	1	1	12	1	0.882300
1	1	1	1	11	1	0.880928
1	1	0	1	1	1	0.876950
0	0	1	1	1	1	0.829268
0	0	0	1	7	1	0.820365
1	0	0	1	6	1	0.741935
1	0	1	1	3	0	0.729198
0	0	0	0	3	0	0.701183
1	0	0	0	3	0	0.674923
1	1	0	0	7	0	0.642923
0	0	1	0	4	0	0.639261
1	0	1	0	3	0	0.621905
1	1	1	0	22	0	0.557583
0	1	1	0	5	0	0.543507

0	1	0	0	0	0	0.469388
---	---	---	---	---	---	----------

Table 8. Analysis of Necessary Conditions: model 2

<b>Outcome variable: Business not older than 3 years</b>		
<b>Conditions tested</b>	<b>Consistency</b>	<b>Coverage</b>
Migration	0.530746	0.677850
Non-Ghanaian contacts	0.564627	0.726522
Foreign inputs to enterprise	0.506567	0.688438
Young/uneducated	0.567164	0.826087

Necessary conditions were again tested for (table 8), and again none were identified. Table 9 shows the solution factors for this model. It confirms that the most common factor among these new businesses is being young and/or uneducated, and that while many of these entrepreneurs cannot access foreign inputs (the first solution factor) or migrate themselves (the second factor), seeking out non-Ghanaian contacts is a common strategy.

Table 9. Model 2: solution factors

Model 2	Business less than 3 years old =f(migration, non-Ghanaian contacts, foreign inputs, young/uneducated)				
Consistency cutoff:	0.741935				
Results:		Number of cases	Raw coverage	Unique coverage	Consistency
Solution factors:	1. ~ foreign inputs * young/uneducated	19	0.299254	0.063731	0.827487
	2. ~ migration* young/uneducated	20	0.327164	0.022388	0.871571
	3. non-Ghanaian contacts * young/uneducated	20	0.328209	0.077761	0.903080
Solution coverage:	0.495224				
Solution consistency:	0.842346				

This model is interesting in comparison with the truth table (table 7) above, because of the difference between the variety of paths indicated in the truth table and the minimised version of these combinations. The solution factors indicate the overall unavailability of options rather than the freedom to choose different strategies. Again, the paths shown by this model involve mainly actors from the north (30, as opposed to 7 from Accra). While it is clear from the exploratory analysis that this group is using contacts and migration overseas, what emerges from this model is a picture of optimism rather than achievement:

they are unable to migrate (solution factor 2), but are making non-Ghanaian contacts (factor 3) that are not yet paying off (factor 1). This could be interpreted, as interviews also suggest, to mean that transnational social capital is hard to mobilise for those just entering the sector.

*Model 3: businesses that break even and involve little international contact*

Model 3 is designed to investigate the outcome of breaking even. Here we include formal education and sector-specific skills which are important according to the literature on small business viability (e.g. Nziramasanga 2010; Frese 2000), but which have not so far emerged as strong explanatory factors. Of the entrepreneurs surveyed, 74% had a high school education or more, and 53% of the businesses surveyed kept accounts. Regarding sector-specific skills, 38% were owned by entrepreneurs who also worked with varying degrees of formality as IT technicians.

The variables used in this case, their calibration and its rationale are detailed in table 9. ‘Broad networks’ was calibrated to give full set membership to those with the greatest variety in their networks (i.e. local, national and international) and non-membership to those who were least connected. ‘Formal education’ was calibrated to give those with a high school diploma or above full membership, and no membership to those without any formal education, on the basis that first, the studies suggest this is important elsewhere in Africa, and second, that a high school education should improve entrepreneurs’ level of English, and thus their ability to do business in a sector that privileges English language proficiency. Finally, keeping formal accounts and having technical skills that extend the business’ human capital base are included as dichotomous variables.

Table 10. variables used in model 3

Variable	Type	Description	Fuzzy set calibration	Rationale
Breakeven	Dichotomous	OUTCOME VARIABLE	N/A	Does the business make a profit in an average month
Broad networks	Fuzzy	How varied is the owner/respondent’s network of contacts	Fully in =3 (local, national, international), Neither in nor out =1.9 (national), Fully out =0 (respondent claims not to be professionally networked).	Those with the broadest range of contacts are most likely to be able to mobilise social capital in the form of resources and problem-solving help.
Formal education	Fuzzy	What is the highest level of education attained by someone responsible for the business	Fully in=3.1 (more than high school), Neither in nor out= 1.9 (attended but did not complete high school), Fully out= 0 (did not attend high school).	Ghanaian high schools teach in English, the language of the IT sector. Those with more than primary-school education can keep accurate accounts, pay back loans, read contracts in English.
Formal accounts	Dichotomous	Does the business	N/A	Literature suggests formal



		keep accounts		accounts are key to internet cafe viability
Technical ability	Dichotomous	Does the owner/ respondent have advanced technical skills	N/A	Do they have a sideline in repairing hardware, building websites or networking?

Table 11. Truth table: model 3

Formal accounts	Technical ability	Formal education	International networks	Number of cases	Outcome= breakeven
0	1	0	0	4	1
1	1	1	0	2	1
1	1	0	0	6	1
1	1	1	1	8	1
1	1	0	1	8	1
1	0	0	0	2	1
0	1	1	0	1	1
0	0	0	1	15	1
0	1	1	1	5	0
0	0	0	0	10	0
0	0	1	1	5	0
0	0	1	0	2	0
1	0	0	1	10	0
0	1	0	1	2	0
1	0	1	1	9	0
1	0	1	0	4	0

Table 12. Model 3: analysis of necessary conditions

Outcome variable: Breaking even		
Conditions tested	Consistency	Coverage
formal accounts	0.515152	0.693878
technical ability	0.439394	0.805556
broad networks	0.525455	0.689326
formal education	0.555455	0.682936

Table 13. model 3: solution factors

Model 1	breakeven = f(formal accounts, technical ability, formal education, broad networks)				
Consistency cut-off:	0.739130				
RESULTS:		Number	Raw	Unique	Consistency

		of cases	coverage	coverage	
Solution factors:	1. accounts * technical ability	13	0.303030	0.170606	0.833333
	2. technical ability * ~ networks	20	0.208333	0.075909	0.859375
	3. accounts *~ education * ~ networks	8	0.130303	0.057424	0.807511
	4. ~ accounts * ~ technical ability * ~education * networks	15	0.123636	0.123636	0.739130
Solution coverage:	0.560000				
Solution consistency:	0.808222				

This model (table 13) shows an interesting and initially counterintuitive result, again describing mainly northern enterprises (33, as opposed to 9 from Accra). As seen in the first solution factor, technical skills and accounting ability – which is associated with working abroad, as seen in the exploratory analysis – are involved in 13 of the cases showing the outcome. The second factor shows that in 20 cases, entrepreneurs can break even through technical skill despite a lack of networks.

The last two solution factors dealing with education show a surprising result: it contributes only by its absence. It is negatively implicated in each of the two factors, with networks and accounting indicated as possible substitutes.

In both the exploratory and the QCA analysis, this was the only way in which formal education emerged as a relevant factor for the small businesses studied. This finding differs from that of Nzimarasanga *et al.* (2010) whose study of self-employment in various sectors in Zimbabwe found that entrepreneurs' level of education was an important condition for business viability. However, the entrepreneurs in Nzimarasanga's study were all able to access loans, whereas only 14% of those surveyed here had done so. This suggests that formal education's relationship to entrepreneurial success differs according to the sophistication of the business environment, and that where the environment is resource-poor, the ability to problem-solve and gather resources from elsewhere is more helpful than formal education.

#### *Model 4: businesses that break even and involve mobility*

This fourth model, where entrepreneurs are able to migrate, is based both on the exploratory analysis and on the Transrede study of Ghanaian entrepreneurs (Black and Ammassari 2001), which showed that migrating for work is a source of new approaches and greater efficiency, and thus a higher likelihood of breaking even. It includes maturity as a variable since returnees tend to be older (de Vreyer 2010), and incorporates the possibility that these cases will also show ongoing foreign inputs resulting from contacts made while abroad.

Table 14: Variables used in model 4

Variable	Type	Description	Fuzzy set calibration	Rationale
Breakeven	Dichotomous	OUTCOME VARIABLE	N/A	Does the business make a profit in an average month
Migrated for work	Dichotomous	Has the owner/ respondent worked abroad	N/A	Any period spent working outside Africa enables people to learn different skills and approaches to business
Foreign inputs	Fuzzy	How many people are contributing from outside Ghana.	Fully in = 1.9, Neither in nor out = 0.9, Fully out = 0.	One foreign contributor may be a coincidence, but if a business is communicating with 2 or more people abroad, the owner may have been building a network by design.
Maturity	Fuzzy	Are they senior members of their community	Fully in = born after 1929 Neither in nor out = born after 1978 fully out = born after 1991	Entrepreneurs over 30 are considered mature, senior members of the community in terms of credit eligibility and association-building.
Non-Ghanaian contacts	Fuzzy	Set of cases with a high number of non-Ghanaian contacts overseas	Fully in = 4.9 (the maximum observed value), Neither in nor out = 1.9 (more than one contact suggests purposeful international networking), Fully out= 0 (no contacts abroad).	Even if contacts are not yet contributing to the business, many businesses are seeking them in the hope of future contributions.

Table 15: Truth table: model 4

Migrated for work	Foreign inputs	Maturity	Non-Ghanaian contacts	Number of cases	Outcome= breakeven	Consistency
1	0	0	1	0	1	0.834559
1	0	0	0	3	1	0.818672
1	1	0	1	7	1	0.814709
1	0	1	1	4	1	0.801399
1	0	1	0	0	1	0.772080
1	1	1	1	16	1	0.743525
0	0	0	0	10	1	0.708888
1	1	1	0	3	0	0.698530
1	1	0	0	3	0	0.697226
0	0	1	0	6	0	0.689600
0	1	1	1	14	0	0.676450
0	1	1	0	4	0	0.654788
0	1	0	1	13	0	0.616848
0	1	0	0	1	0	0.613184
0	0	1	1	3	0	0.598520
0	0	0	1	6	0	0.554065

Table 16. Model 4: analysis of necessary conditions

<b>Outcome variable: Breaking even</b>
--

Conditions tested	Consistency	Coverage
Migrated for work	0.424242	0.777778
Foreign inputs	0.526667	0.705071
Maturity	0.498030	0.714255
Non-Ghanaian contacts	0.551061	0.698483

The logical remainder shown in line 1 of the truth table (having migrated for work and having non-Ghanaian contacts that are not contributing inputs) was not excluded because it was considered possible, given that there were observed cases involving work migration that had neither ongoing contacts nor inputs. Table 17 shows the solution factors for this model. First, there is a group of 9 northern and 4 southern cases, for whom none of these factors are at work. The second term shows that another path involves having worked abroad, and having non-Ghanaian contacts and inputs resulting from those contacts. This solution factor is shared by 10 northern and 10 southern cases. Finally, the third solution involves being over 30, having worked abroad, and having non-Ghanaian contacts which may or may not be actively contributing resources, and involves 12 northern and 8 southern cases.

Table 17: Model 4 solution factors

Model 4	breakeven = f(migrated for work, foreign inputs, maturity, non-Ghanaian contacts)				
Consistency cut-off:	0.708887				
RESULTS:		Number of cases	Raw coverage:	Unique coverage:	Consistency:
Solution factors:	1. ~foreign inputs * ~non-Ghanaian contacts * ~mature	13	0.222576	0.192576	0.739678
	2. migrated for work * non-Ghanaian contacts * foreign inputs	20	0.177879	0.041970	0.782667
	3. migrated for work * non-Ghanaian contacts * mature	20	0.170909	0.03333	0.749004
Solution coverage:	0.406515				
Solution consistency:	0.762216				

This suggests that those who can migrate build networks overseas that continue to operate after their return, and that, for those who are able to do so, migrating for work is an important path to the outcome of breaking even. Second, it suggests that the youngest entrepreneurs are unlikely to have these contacts or these inputs. Thus networks are built up over time, and do not always result in inputs. Those in the first group, who migrate for work, may not have such an immediate need for these inputs from their contacts abroad, but may instead be bringing back the technical knowledge, capital and hardware they need.

Overall, this shows that migrating for work may have a powerful influence on entrepreneurs' skills and effectiveness after return, a finding that supports the conclusions of projects such as the Transrede study.

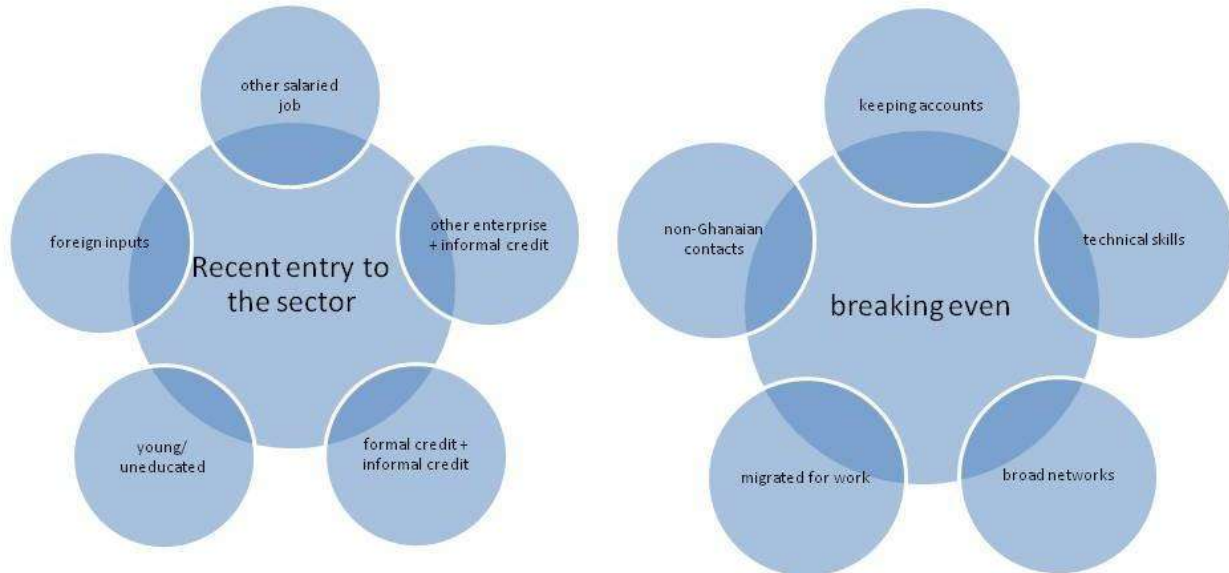
It is interesting that this model incorporates fewer northern cases (23) and more (16) from the Accra group than the previous models. This can be explained by the fact that it most explicitly involves factors related to travel outside Africa, which was more common among the Accra businesses (63%, in contrast to 36% of northerners). Model 2, in contrast, also looked at migration but covered mainly northern businesses and showed that among these, migration was important by its absence. This concurs with the findings from the exploratory analysis, where the cafes found to be using contacts abroad as a proxy for migration were generally northern.

## **Conclusion**

This paper set out to demonstrate that migration and international networking are important catalysts for the diffusion of ICTs in poor countries, and that in order to recognise and build on activities, new connections need to be made between the international development agenda and migration policy. fsQCA shows two contrasting paths to viability, one involving largely domestic activity, and the other the use of multiple mobilities ranging from migrating for work to international networking. The QCA analysis also brings into question some of the findings of other studies of entrepreneurship, specifically the importance of formal education. It thus underlines that, for Ghanaian entrepreneurs, the most important skills for operating in the IT sector are more likely to be learned through migration or transnational networking than from formal education.

Figure 4 shows the two outcomes that have been analysed here, with the main factors implicated in the cases that display those outcomes. Formal education, which the literature predicts should show up clearly as an important contributor to breaking even, is conspicuous by its absence: instead we see indications that entrepreneurs are learning via contacts abroad, and building technical and business skills piecemeal through networking internationally.

Figure 4.



Overall, this QCA analysis confirms that small-scale providers of connectivity in the Ghanaian market are adopting various strategies to seek inputs directly from abroad in response to infrastructural and market failures, and that there are multiple and widely varying paths to gaining the capital and skills that allow the provision of internet connectivity to remote and poor areas of West Africa. While some can afford to stay home, migration and international connections seem to be an important way of levelling the playing field for those who cannot.

Migration is thus shown here to function in two distinct ways. For those with resources, it is a function of wealth and opportunity, allowing richer entrepreneurs to build their businesses and acquire necessities that are unavailable or unaffordable within Ghana. Those who can migrate – more specifically those who have worked overseas – run more productive businesses at home, confirming the findings of de Vreyer *et al* (2010). In contrast, for those without resources, this connection is reversed so that opportunity and wealth are a function of migration. These younger, poorer entrepreneurs are shown to be engaging in a form of international *bricolage*, where they network as widely as possible in as many fora as possible (online, in person with travellers, with institutions and with friends and family who migrate) in order to maximise their exposure to the international.

Despite the comparable difficulties of migrating and of accessing resources at home, the evidence offered here does suggest that migration and international contacts of all kinds constitute an important resource in this spartan business environment, providing inputs that cannot be accessed domestically and increasing financial flexibility, risk tolerance and resilience to shocks. Although it is impossible to say what this

sector would look like without its unseen but extensive and multidimensional international linkages, one can posit that a large proportion of businesses that are currently managing to break even and provide jobs, education and opportunity, often in rural or very poor urban areas, would simply be missing from the picture.

## References

Alfieri, A, Havinga, I, and Hvidsten, V (2005) 'Definition of remittances and relevant BPM5 flows' UN ECOSOC meeting notes. Accessed 6.1.10 at <http://unstats.un.org/unsd/tradeserv/TSG%2002-05-Paris/tsg0502-16.pdf>

Ammassari, S (2003): 'From nation-building to entrepreneurship: the impact of élite return migrants in Côte d'Ivoire and Ghana'. Working paper presented at International Workshop on Migration and Poverty in West Africa; March 13-14, 2003, University of Sussex

Black, R. and Ammassari, S. (2001): 'Harnessing the Potential of Migration and Return to Promote Development: Applying concepts to West Africa', IOM Migration Research Series, 5, International Organization for Migration, Geneva.

Blackler, F. (2002). 'Knowledge, knowledge work and organizations: an overview and interpretation'. *The Strategic Management of Intellectual Capital and Organizational Knowledge*. C. Choo and N. Bontis. New York, Oxford University Press Inc: 47-64.

Blau, D.M. (1987): 'A time-series analysis of self-employment in the United States'. *Journal of Political Economy*, 95(3).

Bohning, W. R. (1981): *Black migration to South Africa: a selection of policy-oriented research*. Geneva: ILO

Burrell, J. (2008): 'Problematic Empowerment: West African Internet Scams as Strategic Misrepresentation' *Information Technology and International Development*, 4(4):15-30.

Carpenter, S; Walker, B; Marty Anderies, J; Abel, N (2001) 'From Metaphor to Measurement: Resilience of What to What?' *Ecosystems*, Vol. 4, No. 8.

Cornelius, W (1990): *Labor migration to the United States: development outcomes and alternatives in Mexican sending communities*. Washington DC, Commission for the study of international migration and cooperative economic development.

de Klerk, G. J.; Havenga J. J. D. (2004): 'SME networks and clusters and their impact on economic growth: an exploratory overview of Africa'. Working paper, Faculty of Economic and Management Sciences, North-West University, Potchefstroom, South Africa.

de Vreyer, P; Gubert, F; Robilliard, A (2010): 'Are There Returns to Migration Experience? An Empirical Analysis using Data on Return Migration and non-migrants in West Africa'. Workshop on Migration in West Africa: Governance and Links to Labour Markets. Dakar, 25 March 2010. [Accessed 29.3.10 at <http://www.oecd.org/dataoecd/31/63/44806127.pdf>]

Evans, D.S. and Leighton, L.S. (1989): 'Some empirical aspects of entrepreneurship'. *American Economic Review*, 79(3), pp. 519–535.

Frese, M (2000): *Success and failure of microbusiness owners in Africa: a psychological approach*. Westport, Quorum Books.

*Ghana Census 2005* Accra: Government of Ghana.

Gibson, J.; Mackenzie, D; Rohorua, H; Stillman, S (2006). 'Natural Experiment Evidence on Whether Selection Bias Overstates the Gains from Migration', paper presented at the International Association of Agricultural Economists 2006 Annual Meeting, August 12-18, 2006, Queensland, Australia.

Granovetter, M. (1973). 'The strength of weak ties'. *American Journal of Sociology*, 78(6), pp. 1360-1380.

Holmes, T.J.; Schmitz, J.A. (1996): 'Managerial tenure, business age, and small business turnover'. *Journal of Labor Economics*, 14 (1).

IICD (2008): 'Rural Access: Options and Challenges for Connectivity and Energy in Ghana', accessed 12.1.11 at <http://www.iicd.org/files/Rural-Access-Ghana.pdf>.

ITU (2008). 'African Telecommunication/ICT Indicators 2008: At A Crossroads'. International Telecommunications Union.

Kiggundu, M.N. (2002) 'Entrepreneurs and entrepreneurship in Africa: What is known and what needs to be done?' *Journal of Developmental Entrepreneurship* 7(3).



- Levitt, P. (1998). 'Social Remittances: Migration Driven Local-Level Forms of Cultural Diffusion.' *International Migration Review* 32(4).
- Lucas, R. E. B (1987): 'Emigration to South Africa's mines'. *American Economic Review* 77.
- McCormick, P (2002): 'Internet Access in Africa: A Critical Review of Public Policy Issues' *Comparative Studies of South Asia, Africa and the Middle East*, Vol. XXII Nos. 1&2 (2002)
- Mengeot, B (2003) 'Refus de migrants au Burkina Faso: manque de place ou critère ethnique?' Université catholique de Louvain, Faculté des Sciences (unpublished, available from [www.compass.org](http://www.compass.org))
- Polanyi, M. (1966). *The Tacit Dimension*. London: Routledge and Kegan Paul.
- Nsengiyumva et al (2006) Towards an African e-index: SMS access and usage across 14 African countries. Access online (5/1/10) at <http://mobileactive.org/research/towards-african-e-index-sms-e-access-and-usage-across-14-african-countries>
- Nziramasanga, M. T., Bhattacharjee, S. and Lee, M.(2009) 'Viability of Self-Employment', *Journal of Development Studies*, 45: 7, 1070 — 1092
- Ragin, C. (1987): *The Comparative Method*. Berkeley University of California Press.
- Ragin, C (2000): *Fuzzy-Set Social Science*. Chicago: University of Chicago Press.
- Ragin, C. (2005) 'From Fuzzy Sets to Crisp Truth Tables'. Compass Working Paper 2004-28. Available at [http://www.compass.org/files/WPfiles/Raginfztt\\_April05.pdf](http://www.compass.org/files/WPfiles/Raginfztt_April05.pdf).
- Ragin C., Sonnett, J. (2005) 'Between Complexity and Parsimony: Limited Diversity, Counterfactual Cases, and Comparative Analysis'. Pp. 180-197 in Sabine Kropp and Michael Minckenberg (eds.), *Vergleichen in der Politikwissenschaft*. Wiesbaden: VS Verlag für Sozialwissenschaften.
- Ragin, C. (2006) 'Set Relations in Social Research: Evaluating Their Consistency and Coverage'. *Political Analysis* 14(3):291-310.
- Ragin, C (2008) *Redesigning Social Inquiry* Chicago: University of Chicago Press.
- Robinson, J., DiMaggio, P.J. & Hargittai, E. (2003): 'New Social Survey Perspectives on the Digital Divide'. *IT & Society*. 1(5), 1-22. Summer.
- Russell, S.S. Jacobson, K and Stanley, W.D. (1990): 'International migration and development in Sub-Saharan Africa'. World Bank discussion papers, Africa technical series, 101.

- Santos, B (2002): *Toward a New Legal Common Sense*, 2nd ed. London: LexisNexis Butterworths.
- Schindler, Kati (2010) 'Credit for What? Informal Credit as a Coping Strategy of Market Women in Northern Ghana', *Journal of Development Studies*, 46: 2, 234-253
- Takenoshita, H (2009) 'Education and Labour Market Outcome Among Chinese Migrants in Japan. Mixed Methods Approach Using Regression and QCA', paper presented at Expert Roundtable on the Study of Strategies of Social Change Using the Method of Qualitative Comparative Analysis (QCA), Manchester
- Taylor, J; Arango, J; Hugo, G; Kouaouci, A; Massey, D; Pellegrino, A (1996): 'International Migration and Community Development', *Population Index*, Vol. 62, No. 3
- Taylor, L (2009): 'Shall we stay or shall we go?' Ghana country report. Institute for Public Policy Research working paper.
- Van Dijk, J.; Hacker, K. (2000): 'The digital divide as a complex and dynamic phenomenon'. 50th Annual Conference of the International Communication Association (1-5 June 2000: Acapulco) [communication online].  
[http://www.gw.utwente.nl/vandijk/research/digital\\_divide/Digital\\_Divide\\_overigen/pdf\\_digitaldivide\\_wBSITE.pdf](http://www.gw.utwente.nl/vandijk/research/digital_divide/Digital_Divide_overigen/pdf_digitaldivide_wBSITE.pdf)
- United Nations (1998): 'Recommendations on Statistics of International Migration'. ST/ESA/STAT/SER.M/58/Rev.1 (accessed 3.3.10)
- UNCTAD (2008). 'Information Economy Report 2007-2008'. United Nations Conference on Trade and Development.
- Williams, A. M. (2007). 'International labour migration and tacit knowledge transactions: a multi-level perspective.' *Global Networks: A Journal of Transnational Affairs* 7: 29-50.