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Landlockedness as an Impediment to Economic Development in Ethiopia: A Framework for a Durable Solution

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Abstract: *We consider the adverse impacts of landlockedness on the flow of trade and economic growth potential of a developing country, with particular reference to the case of Ethiopia in relation to the port of Assab. It is argued that the current arrangement, through which Ethiopia is deprived of its rightful access to the sea, has no legal, historical or socioeconomic justification, and that the status quo is destined to lead to regional instability and to perpetuate the cycle of poverty and human suffering in the affected countries. It is proposed that a viable solution to the looming catastrophe is one that recognizes the historical and legitimate claim of Ethiopia to access to the sea, and redresses past injudicious policies and international resolutions that have been implemented without due consideration of historical facts and economic realities.*

Keywords: Landlockedness, Ethiopia, Port of Assab, Flow of Trade, Economic Growth

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1. Introduction

Formulating a comprehensive policy of economic development that considers reorientation of a country's foreign trade and integration into the global economy requires a clear understanding of the nature of the various constraints that landlockedness imposes. In the case of Ethiopia, the issues that need to be addressed include how the effect of landlockedness interacts with that of poor transportation infrastructure in the country and its transit neighbors, how lack of its own free access to the sea limits the benefit from international trade, and what practical national measures and policy on access to the sea can help mitigate the effect of landlockedness on trade. This study attempts to answer these questions through a review of some of the pertinent quantitative literature on landlockedness and the economy of landlocked countries, with particular reference to the Ethiopian situation and the significance of the port of Assab.

A landlocked country is conventionally defined as one enclosed or nearly enclosed by land. Being landlocked is not just a simple geographic feature of a country, but is also an important determinant of the real economic life and future of that country. In its 2005 report, the United Nations (UN) Office of the High Representative for the Least Developed Countries (2010) declares that lack of territorial access to the sea, remoteness and isolation from world markets, and high transit costs continue to impose serious constraints on the overall socio-economic development of most landlocked countries.

As of 2008, there are 45 landlocked countries in the world, including the newly independent South Sudan. As shown in Table 1, Africa has sixteen, Europe has fifteen, Asia has twelve and South America has two landlocked countries. Ethiopia, one of the largest and most populous countries among those in this predicament, was rendered landlocked in 1993 following a dubious decision by the United Nations, with the inexplicable acquiescence of the government in power.

Tragically, Ethiopia is ranked as one of the poorest nations in the world by almost all measures of economic development. The deplorable economic condition of the country is expected to continue in this hapless path as long as it remains landlocked and a meaningful and balanced policy of economic development cannot be implemented through good governance. Therefore, it is of paramount importance to revisit the adverse impact of landlockedness on the economy of Ethiopia, with a view to informing policy makers and researchers engaged in the search for viable solutions to the cycles of poverty, famine and absence of good governance that have been distinguishing features of the country in the recent past.

2. Perspectives on Landlockedness

In recent years, there has been research galore exploring the cost of landlockedness and the nexus between geographic location, trade and economic growth, borrowing ideas principally from the new economic geography, new trade theory, and neoclassical and endogenous growth theories. Notably, the importance of trade performance in transition economies like Ethiopia has been studied, among others, by Kaminski, Wang and Winters(1996), Hamilton and Winters (1992), Babetskaia and Maurel (2004), Havrylishin and Al-Atrash (1998), and Bevan, Estrin, et al. (2001). While some researchers have focused on the hefty costs of long distance travel and poor transportation infrastructure (see, e.g., Arvis, et al., 2010; Brun, et al., 2005; Chowdhury and Erdenebileg, 2006; Faye, et al., 2004; Limao and Venables, 2001; Hagen, 2003; Paudel, 2012; Raballand, 2003; and Radelet and Sachs, 1999), others have investigated the impact of dependence on neighboring coastal or maritime countries (Cadot, et al., 2005; Cadot, et al., 2008; Grafe, et al., 2005; and Faye et al., 2004).

Raballand (2003), Grigoriou (2012) and Sohn (2001), among others, provide quantitative results of the impact of landlockedness and remoteness on volume and benefit of trade. Empirical studies have also been conducted relating poor product quality and hysteresis in consumption, production and business networks to landlockedness (see, e.g., Djankov and Freund (2002)).

The correlation between distance and transport costs of trade between two countries were analyzed using the gravity model first applied by Tinbergen in 1962 (Nello, 2009). In this framework, the basic model for trade between two countries (i and j) is given by

$$F_{ij} = G\frac{M_i M_j}{D_{ij}}$$

where F_{ij} is the trade flow between the countries, M_iM_j are their respective Gross Domestic Products (GDPs), D_{ij} is the distance between the countries, and G is a constant. This model has been heavily used to predict bilateral trade flows and to test the effectiveness of trade agreements by organizations such as the North American Free Trade Association (NAFTA) and the World Trade Organization (WTO). The two main variables in the model are the economic sizes of the trading countries (often using GDP measurements) and the distance between the countries. In application, the model is often extended by including other variables, such as language, contiguity of countries, exchange rates that could directly or indirectly affect the flow of trade, and other free-trade barriers. Most of the research results indicate that, other factors being equal, a landlocked country would trade about 38% less than a coastal one (Sakaho, 2006). One notable exception was Raballand (203) who analyzed the effect of landlockedness on trade using a restricted panel data of 18 landlocked countries over a period of five years (1995 -1999), and concluded that landlockedness reduced trade by more than 80%. More recently, Arvis, et al. (2010) reported that landlocked countries trade 30% – 43% percent less on average than their costal counterparts.

In a 2010 report, the United Nations Conference on Trade and Development (UNCTAD), basing its estimates on the International Monetary Fund (IMF) balance of payment statistics, concluded that the average amount landlocked countries spent for the payment of transport and insurance services was more than twice the average spent by developing countries, and more than three times the average for developed economies.

Using data on Cost, Insurance and Freight (*CIF*) and *Free On Board* (*FOB*) from the IMF for ninety-seven developing countries, seventeen of which are landlocked, Radelet and Sachs (1999) estimated that transport and insurance costs for landlocked countries were twice as high as those for coastal countries. They concluded that geographic isolation and higher shipping costs may make it much more difficult, if not impossible, for relatively isolated developing countries to succeed in promoting manufactured exports. In a related study, Limao and Venables (2001) found a large effect of infrastructure quality on trade costs, particularly for landlocked countries, using a cross section of countries, while controlling for quality of transit infrastructure. More specifically, they noted that poor infrastructure accounted for 40% of predicted transport costs for coastal countries, and up to 60% for landlocked countries. The high impact of remoteness and infrastructure on trade costs was also reported by Brun et al. (2005).

Further, Paul Collier (2007:5) argues that while the majority of the 5-billion people in the "developing world" are getting richer at an unprecedented rate, a group of countries (mostly in Africa and Central Asia) are stuck with some sort of development traps and suggests that development assistance should be focused heavily on them. According to Collier, these countries typically suffer from one or more development traps: (1) The Conflict Trap; (2) The Natural Resource Trap; (3) The Bad Governance trap; and, (4) Landlocked with Bad Neighbors Trap. Poor landlocked countries with poor neighbors find it almost impossible to tap into world economic growth. Collier explains that countries with coastline trade with the world, while landlocked countries only trade with their neighbors. Landlocked countries with poor infrastructure connections to their neighbors will necessarily have a limited market for their goods.

Faye, et al. (2004) assert that the dependence of landlocked countries on other countries' transit routes for access to overseas markets is one of the major factors of why there is no single successful and highly developed landlocked country outside of Europe. The authors further noted that the dependence is a function of several variables, including transit infrastructure, political relations with neighbors, peace and stability within transit neighbors, and administrative processes in transit.

It must be noted that landlockedness could have different and varying impacts for different countries with different economic and geographic conditions. For instance, the impact of landlockedness

for the Czech Republic, which has direct access to well-developed European highway networks, is different from that of Bolivia or Ethiopia, which is surrounded by very difficult terrains and has relatively poor transportation infrastructure. Similarly, the impact of landlockedness has less impact for countries like Austria, Luxemburg and Switzerland, which are surrounded by such large trading economies as France, Germany and Italy (Cadot et. al, 2008). Landlocked developed countries of Europe are surrounded by major developed markets and their seaborne trade accounts for a relatively small part of their external trade. Their export is mainly high value-added products and their distance from the seaport is relatively short (UN, 2005). Accordingly, the constraints resulting from landlockdeness for these countries are not as devastating as those for developing countries.

3. The Economy of Landlocked Countries

Thirty-two of the forty-five landlocked countries belong to what is called the Land-Locked Developing Countries (LLDCs), with Africa contributing half of them (Table 2)[1]. These thirty-two LLDCs collectively account for only 2% of the world's GDP while occupying 12.5% of the world's total land surface area (Chowdhury and Erdenebileg, 2006). Economic and other disadvantages experienced by these LLDCs make the majority of the landlocked countries Least Developed Countries (LDCs) and their inhabitants occupy the bottom billion tier of the world's population in terms of poverty (Paudel, 2005).

The sea-borne trade of the landlocked countries largely depends on transit through other countries. Additional border crossings and long distances from the market substantially increase the total expenses for the transport services. Therefore, the economic performance of landlocked countries reflects the direct and indirect impact of geographical situation on their key-economic variables. For example, based on the 2012 World Economic Outlook Database of the IMF, the average GDP per capita for the world is about $15,000. Of the forty-five world's landlocked countries, only eight have GDP per capita that is higher than this average; and all of these eight countries are in Europe. The average of all landlocked countries is only about $13,000. It may be noted that even this average is further distorted by the inclusion of countries like Switzerland, Luxemburg and Lichtenstein, which have per capita GDP as high as $118,000. Excepting Hungary and Kazakhstan that have $12,736 and $11,774, respectively, all of the other landlocked countries have much smaller GDP per capita ranging between Burundi's $282 and Botswana's $9,893 (Table3).

Arvis, et al. (2010) argue that landlocked countries experience weaker growth than maritime countries. More specifically, controlling for the effects of other factors, being landlocked reduces average growth by about 1.5%, and on average, landlocked countries have dependence on IMF assistance much longer than coastal countries. Further, similar studies have reported that, other factors remaining constant, landlocked countries that rely on transoceanic trade tend to incur a cost of trade that is twice the amount incurred by their maritime neighbors, and experience 6% less economic growth compared to their non-landlocked neighboring countries (Hagen, 2003; Paudel, 2005).

Clearly, a 6% lag in the economic growth rate of a country could have a very devastating consequence. Consider, for instance, two countries that are identical in all aspects, except that one is coastal while the other is landlocked. Suppose the coastal country enjoys a modest annual growth rate of 3% on the average. Then by the rule of 72, other economic factors remaining constant, the coastal country will double the volume of its economy in 24 years. On the other hand, the landlocked country will have a lag of 24 years behind the coastal country for its economy to grow double fold.

In general, landlocked developing countries have the weakest growth rates, and are heavily dependent on a very limited number of commodities for their export earnings. As depicted in Table 3, the LLDCs are generally among the poorest of the developing countries when measured in terms of their human development indices (HDI), multidimensional poverty indices (MPI), and per capita gross domestic product (PCGDP). Sixteen (excluding South Sudan) of the thirty-two LLDCs are classified as least developed countries (LDCs) by the UN. These countries have restricted or no access to waterways and are

[1] Europe has Armenia, Azerbaijan, Macedonia, and Moldova only in the LLDC group.

characterized by continued isolation from major international markets and by formidable obstacles to economic development resulting from the costs of landlockedness. These countries typically have limited capability to import essential capital and consumer goods or to competitively export their domestic products, which are mostly primary, to the world market. As a result, these landlocked countries are marginalized in the fast globalizing world economy, and trail the rest of the world in every index of economic growth and human development.

4. The State of the Ethiopian Economy

According to the UN Human Development Report of 2013, Ethiopia is one of the eight countries in the world with the lowest human development index (HDI) and one of the two countries (Niger being the other) with the highest multidimensional poverty index (MPI). Despite the much publicized double-digit economic growth over the last 20 years, Ethiopia has one of the lowest PCGDP in the world, just a little ahead of Burundi, Niger and Central African Republic, based on the World Economic Outlook Database of the IMF (2012). Further, compared to its immediate coastal neighbors, it has the lowest per capita GDP, less than those of Somalia and Eritrea; the highest MPI; and the lowest HDI, excepting Eritrea (see Table 3).

Relative to its large population, the second largest in Africa and the largest amongst the landlocked countries, Ethiopia has one of the smallest economies in the continent, accounting for only 1% of the continent's GDP (African Development Bank Group, 2008). Merlin, USA, a medical relief project operating in Ethiopia, in 2007 reported that Ethiopia is one of Africa's poorest countries, where over 80 percent of the nation's 77 million people live below the poverty line.

Despite the unsubstantiated growth figures periodically issued by the government and its international bankrollers, including the World Bank and IMF, the economic situation of the Ethiopian people is precarious, and has only gotten worse, as evidenced by various development indices. For example, based on the Mundi Index report for the years 2007 and 2008, the nominal per capita GDP had increased by 33.4%, while the inflation rate between the two years had increased at an alarming rate of 158%, resulting in a consumer price index (CPI) rise of 44.4 in 2008 from 17.2 in 2007[2]. Predictably, the same trend was observed between 2010 and 2011, viz., the nominal per capita GDP of $358.00 in 2010 had increased to $438.00 in 2011, showing an almost 21% increase, while the CPI increased by 374% during the same time.

The data in Table 4 further demonstrates that the Ethiopian people are increasingly impoverished, and that their buying power is diminishing relentlessly. Because of inflationary prices, the real goods and services people can afford to buy are annually decreasing, and the economic conditions and the standard of living of the population at large have distressingly declined. The income disparity among the rich, who are mostly affiliated with the ruling minority elite, and the poor, constituting the vast majority, has widened unbridled. The bogus increases in the GDP, which are more driven by the ever increasing foreign aid and inflationary prices than by true increases in actual output of goods and services, have not been at par with the ever-growing population. Incidentally, the dismal economic reality of the country notwithstanding, the ruling party has chosen to pursue a policy that disregards the importance of access to the sea and its role in boosting the economy through favorable trade flow and international commerce.

5. Landlocked Ethiopia and the Port of Assab

Ethiopia had enjoyed legitimate access to the sea through the ports of Assab and Massawa until the effective separation of Eritrea from the mainland in 1991. The country, one of the most populous in the league of landlocked countries, with a population size fast approaching 90 million, was officially rendered landlocked by a dubious and ignominious decision of the government in power and its international backers. Predictably, the legality and legitimacy of this decision to strangulate Ethiopia by denying it access to the sea have since been challenged by many scholars on the basis historical, national security and humanitarian grounds, as well as on accounts of the economic viability of the nation. Most notably, the historical

perspectives of the illegal decision have been extensively studied by Kindie (2005) and Larebo (2001) The legal and national security issues surrounding the separation of Eritrea and the loss of Assab were addressed by Hailemariam (2007, 2011), Kahsay (2007) and Abay and Kihishen (2000).

Since most of the country's import-export trade is conducted through sea transport, and because Massawa and Assab are no longer viable options, Ethiopia is forced to rely on the ports of neighboring countries, especially Kenya, Sudan and Djibouti, and occasionally, Somalia. However, the costs of transportation to most of the destination ports are very prohibitive in view of the long distances and poor land transport facilities. Therefore, about 90% of the country's import-export trade is now conducted through the port of Djibouti. As reported in the May 3, 2009, issue of the African Press Agency, even the Ethiopian Ministry of Transport and Communication is on the record acknowledging that relying on a single port has become a bottleneck for the development of import-export trade.

The cost of using the port of Djibouti has been on the rise in recent years. Until the 2008 fee increase, Ethiopia used to pay more than $850 million to DP World Djibouti annually in port fees. The port is administered by DP World Djibouti, a part of DP World that was formed in September of 2005 with the integration of the terminal operations of the Dubai Ports Authority (DPA). In a July 6, 2008 note in the *Sudan Tribune*, it was reported that effective mid-August 2008, there would be a new set of tariff rates that would be applied to all services at the port of Djibouti. The sudden and unexpected new rates involved an increase of up to 25% in marine charges, cargo port dues and storage charges, and a 15% increase in the cost of container stevedoring. This would add an additional cost of at least $210 million for the use of the port by Ethiopia.

According to the aforementioned *Sudan Tribune* report, the Port of Djibouti is used not only as a gateway for Ethiopian transit cargo, but also as a point of destination. The volume of Ethiopia's import and export cargo has risen from 3.9 million tons in 2006/07 to 4.6 million tons in 2007/08. The volume of this import-export was projected to grow by 20% in 2009, to exceed 5.0 million tons[3]. The total annual fee would then be in excess of $1.2 billion – a very huge and unsustainable expense for a resource-constrained country like Ethiopia!

It is thus clear that Ethiopia's trade flow, as a function of both the cost of using alternative sea ports of other countries and distance traveled, would stifle any genuine policy of economic development. The huge fees paid out annually to the coastal countries for port services are a drain in the economy of the country, which is a net importer. This is, of course, money that could instead be invested internally for port service improvement, infrastructure development and other related transportation projects. The latter in turn could immensely improve the trade balance and flow of the country by reducing the cost of exports and imports, and could increase the aggregate demand for domestic goods and services related to the infrastructure development and port services.

The prudent investment of the money paid as port fees could also necessitate increased employment of labor and other resources to meet the accompanying increased demand. With a very conservative estimate of 95% increased consumption spending (i.e., 0.95 marginal propensities to consume) for any amount of additional income Ethiopians get on the average, one would have a corresponding large spending multiplier of 20. This implies that the total fees lost in the form of direct payment for the use of the port of Djibouti could add billions of dollars to the GDP of Ethiopia annually.

Evidently, the unnecessary leakage in the national revenue reduces the value of export, and increases the cost of imports, thereby shrinking the volume of the GDP and depressing the economic growth and development prospects of Ethiopia for years to come. In

[3] No new data for years after 2009 are available to the author for the time being.

addition, the landlockedness imposed on the country has deprived the people of other economic opportunities. Most notably, the loss of access to the sea was accompanied by the loss of maritime resources, including fisheries, as means of food security, and revenues from tourism. In a country like Ethiopia that has experienced vicious cycles of famine and drought, it is hard to overestimate the significance of healthy fish stock as a critical alternative for food security and for sustaining economic prosperity and social and cultural well-being.

In the backdrop of these unfavorable economic realities, to a degree resulting from the landlockedness of the country, the ruling party in Ethiopia does not appear to be poised to seek a framework that will address effectively the loss of the country's legitimate access to the sea. Since the ruling party has confounded the issue with a policy of divide-and-rule that is central to its obsession with ethnic ideology, such a framework may not, however, be at the forefront of its priorities without due pressure from donor countries and organizations, whose munificent support has been the primary driver of those fanciful growth figures.

6. ***Conclusion***

The negative impact of landlockedness on the trade and economic development of Ethiopia is highly pronounced because the country does not have a solid economic base, lacks well-developed transportation facilities, and doesn't have strong neighboring trading partners. Even advocates of the Ethiopian government concur that physical isolation and lack of access to sea-based trade and marine world are among the factors that are obstacles to eradicate poverty in developing countries (see, e.g., Sachs 2007). The position of the ruling party in Ethiopia that denies the existence of such a problem and advocates the continued use other alternative ports has no theoretical or empirical merit. A policy that denies the negative consequences of landlockedness can only condemn the country and its people to perpetual economic deprivation and suffering for generations to come.

In its Resolution 1028 (XI) of 1957, the UN recognized that geographical factors put landlocked developing countries at a distinct disadvantage in their development efforts. Consequently, the resolution highlighted the need of landlocked countries for adequate transit facilities in promoting international trade. More recently, the 2000 UN Millennium Declaration and the subsequent 2003 UN conference held in Almaty, Kazakhstan, further stressed the urgency of the problem and called for global partnership to address the needs of these landlocked developing countries (Chowdhury and Erdenebileg, 2006). The five priorities set in the Almaty Program of Action are:

1. Policy improvements: Reducing customs bureaucracy and fees, designed to cut costs and travel days for landlocked countries' exports.
2. Improved rail, road, air and pipeline infra-structure: Projects reflecting local transport modes (e.g., roads in Africa, rain in South Asia).
3. International trade measures: Giving preferential treatment to landlocked countries' goods, making them more competitive.
4. Technical and financial international assistance: Lending know-how and money to landlocked and transit countries for infrastructure and policy improvements.
5. Monitoring and follow-up on agreements: Use of measurable criteria, such as travel days and costs, potential annual reviews before the UN General Assembly.

While the Almaty Program of Actions is a step in the right direction, it noticeably falls short of providing a true and enduring solution to the problem facing Ethiopia, which has the historical, legal, economic and national security claims to Assab, the closest sea port to the capital city (Table 5). Assuming that Addis Ababa remains the major financial and trading center of the country, as argued in previous sections, use of other ports would have significant negative impacts on the nation's trade flow and

economic development. Therefore, Assab as a port of Ethiopia has a singular and indubitable role to play in mitigating the factors that portend a dismal economic future the country faces as a landlocked entity.

Further, the dismal economic conditions in both Ethiopia and Eritrea are likely causes for regional instability. The Ethiopian national fixation on the port of Assab and the right of access to the sea may be a sure factor for war between the two countries in the future. It should, therefore, be a matter of urgency for all parties concerned to solve the looming crises in the region. It is high time that the concerned countries and the international community recognized the gravity of the issue and were engaged in meaningful dialogues and negotiations. In the process, there should be a clear understanding of the indispensability of the port of Assab to the long-term economic viability and national security of Ethiopia, and the pivotal role the port plays in any effort leading to a successful resolution of the standoff between Eritrea and Ethiopia.

In summary, the prevailing status quo with Ethiopia, one of the most populous and impoverished countries in Africa, remaining landlocked is an unsustainable proposition. There is mounting evidence that the bogus international treaties that the people of Ethiopia have been forced to accept have no binding force from a legal, historical or economic standpoint. It is, therefore, incumbent upon the international community and the peoples of the concerned countries to seek a lasting solution to the problem that has been an impediment to peace and prosperity in that part of Africa. In the search for a viable solution, it is critical that the pros and cons of all available options be explored, taking into account the historical, socioeconomic and national security imperatives in the region. Such a methodical and unbiased approach to the issue is guaranteed to lead to an incontrovertible solution that will affirm the unconditional and rightful return of the port of Assab to Ethiopia, thereby heralding a new era of peace, stability and prosperity for the brotherly peoples of Ethiopia and Eritrea whose common heritage is much more deep-rooted than the shortsighted machinations of politicians that purport to divide them.

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Table 1: List of Landlocked Countries

Africa	**Asia**	**Europe**	**South America**
Botswana	Afghanistan	Andorra	Paraguay
Burkina Faso	Azerbaijan	Armenia	Bolivia
Burundi	Bhutan	Austria	
C A Republic	Kazakhstan	Belarus	
Chad	Kyrgyzstan	Czech Republic	
Ethiopia	Lao	Vatican City	
Lesotho	Mongolia	Hungary	
Malawi	Nepal	Liechtenstein	
Mali	Tajikistan	Luxemburg	
Niger	Turkmenistan	Moldova	
Rwanda South Sudan	Uzbekistan	San Marino	
Swaziland	West Bank	Serbia.	
Uganda		Slovakia	
Zambia		Switzerland	
Zimbabwe		Macedonia	

Table 2. Landlocked Developing Countries - LLDCs[4]

Afghanistan	Kazakhstan	Paraguay
Armenia	Kyrgyzstan	***Rwanda***
Azerbaijan	Lao	***South Sudan***
Bhutan	***Lesotho***	***Swaziland***
Bolivia	Macedonia	Tajikistan
Botswana	***Malawi***	Turkmenistan
Burk. Faso	***Mali***	***Uganda***
Burundi	Moldova	Uzbekistan
CAR	Mongolia	***Zambia***
Chad	Nepal	***Zimbabwe***
Ethiopia	***Niger***	

[4] All in italics and bold are the 16 African countries

Table 3: HDI, MPI, PCGDP and Population of Landlocked Countries

HDI Rank	Country	HDI	MPI	GDPPC	Population
9	Switzerland	0.913	---	79,033	7,785,600
18	Austria	0.895	---	47,083	8,396,760
24	Liechtenstein	0.883	---	118,000	35,789
26	Luxemburg	0.875	---	107,206	502,202
28	Czech Rep	0.873	0.010	18,579	10,674,947
33	Andorra	0846	---	44,952	84,082
35	Slovakia	0.840	---	16,899	5,429,763
37	Hungary	0.831	0.016	12,736	10,005,000
50	Belarus	0.793	0.000	6,739	9,484,300
64	Serbia	0.769	0.003	4,943	73,06,677
69	Kazakhstan	0.754	0.002	11,773	16,372,000
78	Macedonia	0.740	0.008	4,683	2,114,550
82	Azerbaijan	0.734	0.021	7,450	8,997,400
87	Armenia	0.729	0.011	2,991	3,254,300
---	San Marino	---	---	74,046	31,716
---	Vatican City	---	---	---	826
108	Bolivia	0.675	0.089	2,532	10,907,778
108	Mongolia	0.675	0.065	3,627	3,000,000
---	West Bank	---	---	---	---
111	Paraguay	0.669	0.064	3,903	6,349,000
113	Moldavia	0.660	0.007	2,037	3,567,500
114	Uzbekistan	0.654	0.008	1,737	27,606,007
119	Botswana	0.634	---	9,398	1,990,876
125	Kyrgyzstan	0.622	0.019	1,158	5,482,000
125	Tajikistan	0.622	0.068	953	7,349,145
138	Lao	0.543	0.267	1,446	6,320,000
140	Bhutan	0.538	0.119	2,954	691,141
157	Nepal	0.463	0.217	626	26,494,504
158	Lesotho	0.461	0.56	1,040	2,067,000
162	Uganda	0.456	0.367	589	32,369,558
163	Zambia	0.448	0.328	1,474	12,935,000
167	Rwanda	0.434	0.350	693	10,746,311
170	Malawi	0.418	0.334	350	15,028,757
172	Zimbabwe	0.397	0.172	756	12,521,000
173	**Ethiopia**	**0.396**	**0.564**	**483**	**86,613,986**
175	Afghanistan	0.374	---	622	29,117,000
178	Burundi	0.355	0530	282	8,988,091
179	C A Republic	0.352	---	447	4,422,000
182	Mali	0.344	0.558	796	14,517,176
183	Burkina Faso	0.343	0.535	603	15,746,232
184	Chad	0.340	0.344	1,006	10,329,208
186	Niger	0.304	0.642	408	15,306,252

Sources: United Nations Development Programme, 2013; IMF World Economic Outlook Database, 2012; http://en.wikipedia.org/wiki/Landlocked_country; World Bank. Database updated on 27 September 2012

Table 4. Per Capita Income and Consumer Price Index in Ethiopia (2005-2012)[5]

Year	GDP[6]	PCGDP[7]	CPI[8]
2005	12,309	165	11.6
2006	15,694	199	13.0
2007	19,242	251	17.2
2008	25,437	335	44.4
2009	28,527	393	8.5
2010	30,956	358	7.0
2011	38,539	433	33.2
2012	---	483	---

Table 5. Distance between some regional ports and Addis Ababa[9]

From	To	km
Addis Ababa	Mombasa	1804
Addis Ababa	Port Sudan	1696
Addis Ababa	Mogadishu	1520
Addis Ababa	Berbera	943
Addis Ababa	Djibouti	910
Addis Ababa	**Assab**	**624**

[5] http://www.indexmundi.com/ethiopia/inflation_rate_%28consumer_prices%29.html
[6] IMF – World Economic Outlook 2005 -2012
[7] http://www.indexmundi.com/facts/ethiopia/gdp-per-capita
[8] http://www.indexmundi.com/ethiopia/inflation_rate_%28consumer_prices%29.html
[9] The distances given are approximations computed using the standard distance calculator between two cities because distance data are not readily available.

Social capital as a differential of long-term survival in small and medium-sized enterprises in Ethiopia

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Abstract: *This study is based on a longitudinal study of small and medium-sized enterprises operating in five major cities of Ethiopia. The study shows that small and medium-sized enterprises in Ethiopia often suffer from lack of access to finance. Such enterprises raise finance from indigenous informal financial schemes called "iqqub". The schemes lend money to members free of interest, and operate based on mutual trust. The study shows how valuable "iqqub" schemes are to the long term survival of small and medium-sized enterprises in Ethiopia. Predictors of long term survival are estimated by using hazard ratios estimated from the Cox Proportional Hazards Model. The study shows that the long term survival of small and medium-sized enterprises is significantly influenced by access to social capital. The study found that 21% of small and medium-sized enterprises failed in the 9-year long period of study. The study also showed that 61% of businesses that survived the 9-year long study period had borrowed finance from "iqqub" schemes, and that only 18% of non-survivors did the same during the same period of study.*

Keywords: Small and medium-sized enterprises, social capital, access to finance

Introduction

This study is based on a longitudinal study of small and medium-sized enterprises operating in five major regional cities of Ethiopia. A review of the relevant literature shows that small and medium-sized enterprises operating in Ethiopia often struggle significantly to raise finance that is needed for routine operation. Small and medium-sized enterprises in Ethiopia often suffer from lack of access to finance because they do not get loans from commercial banks and formal money-lending institutions. Small and medium-sized enterprises often seek financial assistance from informal financial schemes called "iqqub". These are indigenous, informal money lending associations that are similar to social capital schemes that operate in the rest of the world. Iqqub schemes lend money to fellow members of the scheme free of interest, and operate based on mutual trust. The study shows that "iqqub" schemes are quite helpful for the long term survival and viability of small and medium-sized enterprises in Ethiopia. Predictors of long term survival are estimated by using hazard ratios estimated from the Cox Proportional Hazards Model. According to Frane and Roncevic (2003), social capital is the expected collective or economic benefits derived from the preferential treatment and cooperation between individuals and groups. A similar definition is provided by Adler and Kwon (2002). Anderson, Locker and Nugent (2002) argue that social capital needs to be regulated and formalized if it is to yield tangible economic benefits to small, micro and medium-sized enterprises. Adler and Kwon (2002) have pointed out that social capitals currently in use in the world's least developed economies lack the capacity to make meaningful economic contribution.

A 9-year long study (2002 to 2010) was conducted based on a random sample of 407 small and medium-sized enterprises operating in five major cities of Ethiopia (Addis Ababa, Awassa, Bahir Dar, Nazareth and Mekele) in an attempt to identify and quantify predictors of long-term survival and viability in small and medium-sized enterprises. The Cox Proportional Hazards Model was used for estimating hazard ratios. This particular study is a continuation of the 6-year long study conducted by Bekele and Worku (2008) in which 500 small and medium-sized enterprises were followed up in the period 1996 to 2001. At the end of 2001, 93 of the 500 businesses (18.6%) had failed. In this study, the remaining 407 businesses were followed up between 01 January 2002 and 31 December 2010. The methods and materials used in this study (2002 to 2010) are similar to those used in the first round of study (1996 to 2001). At the end of the

second round of study, 86 of the 407 businesses (21.13%) were out of business, mostly due to lack of access to finance required for routine operation, poor managerial skills, as well as poor technical skills. Businesses that survived the 9-year study period were characterized by extensive utilization of finance raised from the informal financial sector.

Small and medium-sized enterprises do not have the collateral needed for borrowing finance from formal money lending institutions in Ethiopia. The Commercial Bank of Ethiopia requires collaterals as a requirement for lending money. For this reason, small and medium-sized enterprises borrow money from the informal financial sector. In this regard, the most notable source of finance is "iqqub" schemes. The schemes are a form of social capital. They are indigenous financial associations in which financial contributions are routinely gathered from fellow members at regular intervals, and are disbursed as a lump sum, interest free, to one member of the scheme at a time). Financial contributions are made weekly or monthly. Lump sums are awarded to only one member of the scheme at a time while all other members are required to wait their turn. At each round, winners are determined by use of random methods such as ballot papers. In iqqub schemes, although each member of the scheme is guaranteed to collect an interest-free lump sum, the waiting time is often too long and inconvenient. Iqqub schemes are operated among friends and close business associates based on mutual trust and a shared feeling of solidarity. The aim of the study is to identify factors that significantly affect the long-term survival and viability of small businesses and enterprises, and to demonstrate the strategic importance of iqqub schemes for ensuring sustained growth and development in small and medium-sized enterprises in Ethiopia. The study shows the prominent role played by iqqub schemes in Ethiopia in terms of providing interest-free financial loans to entrepreneurs who cannot borrow money from formal money lending institutions such as the Commercial Bank of Ethiopia. Data was gathered on a large number of socio-economic and demographic variables from each of the 407 enterprises over the study period. The variables used in this study are related to viability, profitability as well as sustainable growth and development. The Cox Proportional Hazards Model was used in order to identify key predictors of survival and failure in small and medium-sized enterprises. The study estimates the proportion of businesses that survived the 9-year long study period by utilizing finance from the informal financial sector. The first round of this study was conducted by Bekele and Worku (2008), and had found that poor access to finance was the third most influential factor in affecting long-term survival and viability in small and medium-sized enterprises in Ethiopia.

Background of study

Small and medium-sized enterprises contribute significantly to the national economy of Ethiopia by virtue of alleviating poverty and creating jobs. However, the sector has only been given limited support and recognition by the national government in terms of access to finance as well as the provision of technical and managerial skills to citizens who operate small and medium enterprises. Although the Ethiopian Ministry of Trade and Industry has issued various policies that are helpful for the sustained growth and development of small and medium-sized enterprises, the policies have not been implemented adequately due to lack of infrastructure and capacity. The top 3 obstacles to running a business in Ethiopia are lack of access to finance, difficulty in ownership of land, and difficulty in conducting business in the informal sector (World Bank, 2013). Based on a report issued by the Heritage Foundation (2013), 96.3% of loans in Ethiopia require collateral, compared to the regional average of 80.4%. Ethiopia is ranked 28th out of 46 countries in the Sub-Saharan Africa region, and its overall score is slightly below the regional average.

Historically, large enterprises and state owned institutions have enjoyed much more support in terms of policy, legislation, tax break, and the supply of resources from successive governments in comparison with small enterprises (Bekele & Worku, 2008; Ageba & Amha, 2004; Gebeyehu & Assefa 2004; Enslin, 2006). The study by Quin, Khoury, Peng & Qian (2010) has shown that lack of access to finance is the most influential factor hindering the growth and development of small and medium-sized enterprises in developing nations such as Ethiopia. Historically, small and medium enterprises in Ethiopia have done relatively better during Emperor Hailesilassie's regime that was overthrown in 1974 by Colonel

Mengistu Hailemariam. The sector has performed poorly during Mengistu Hailemariam's socialist regime (1974 to 1990). The performance of the sector is poor even today in comparison with similar sectors in other Sub-Saharan African countries such as Kenya, Uganda and Tanzania. Researchers such as Chetty & Stangl (2009), Coelho & Matias (2010) and Edwards, Sengupta and Tsai (2010) have shown that small and medium-sized enterprises in developing nations such as Ethiopia are generally characterized by an acute shortage of finance, over-regulation, lack of technical skills, poor managerial and accounting skills, lack of training opportunities, shortage of raw materials, poor infrastructure and over-tax. The macro-economic environment in most Sub-Saharan African countries including Ethiopia is not conducive for the growth and development of small businesses (Caroll & Wagar, 2010; Chen, Papazafeiropoulou & Dwivedi, 2010; Ageba & Amha, 2004; Belay, 2002). The study is motivated by the need to attract attention to the crucial role played by "iqqub" schemes in providing badly needed financial assistance to small and medium-sized enterprises in Ethiopia.

Literature review

According to Cant (2012), 40% of new business ventures in South Africa fail in their first year, 60% in their second year, and 90% in their first 10 years of existence. The study conducted by Bowler, Dawood and Page (2006) has found that, in South Africa, small businesses create about 80% of all new job opportunities, and that more than 70% of all South Africans are employed in the small business sector. The study by Murphy (2006) has found that poor marketing skills are often a leading cause of failure in the majority of Sub-Saharan African countries.

According to the National Bureau of Statistics of China (2012), there are at least 10 million private business owners in China. Small and medium-sized enterprises account for 99.6% of all Chinese enterprises, creating about 60 percent of the nation's output and 75 percent of the urban and new jobs. Small businesses are supported by the Chinese Communist Party with regards to finance, and import and export functions. In the United States, over 50% of small businesses fail in the first five years. Globally, the top ten causes of failure in small businesses are: lack of skills and experience in operating businesses, insufficient capital, poor physical location, poor inventory management, over-investment in fixed assets, poor credit arrangements, personal use of business funds, unexpected growth, still competition, and low sales (Asiedu, Freeman and Nti-Addae, 2012).

A review of the global literature clearly shows that no national economy can grow on a sustainable basis in environments where small and medium-sized enterprises are not supported adequately. Ethiopia is one of the poorest and least developed nations of the world (Ethiopian Ministry of Trade and Industry, 2010). In order to achieve sustained economic growth and development, the country needs to empower small and medium-sized enterprises (Ethiopian Central Statistics Authority, 2010). Lessons learned from the world's most advanced economies such as Japan, Taiwan, the United States, Germany, China and South Korea show that there can be no sustained growth and development in a nation unless otherwise adequate support is provided to small and medium-sized enterprises (Dasanayaka & Sardana, 2010; Doom, Milis, Poelmans & Bloemen, 2010; Hadaya & Pellerin, 2010; Harris & Rae, 2010; Jagoda, Maheshwari & Lonseth, 2010). Extensive research has shown that it is virtually impossible for national governments in poorly developed nations such as Ethiopia to alleviate massive unemployment and abject poverty without utilizing small and medium enterprises as a vehicle for realizing sustained economic growth and development (Jack, Moult, Anderson & Dodd, 2010; Ingstrup (2010), Estebanez, Grande & Colomina, 2010; Hicks, Culley, McMahon and Powell, 2010; Jones, 2010; Kozovska, 2010). Small and medium-sized enterprises in Ethiopia suffer from poor infrastructural development, lack of foreign direct investment, shortage of foreign currency, and over-regulation. Based on progress achieved by countries in the Far East and South East Asia, the national government has to introduce innovative schemes of lending easy money to small and medium-sized enterprises along with an enabling economic environment (Lee, Lee, Olson & Chung, 2010; Lopez-Nicholas & Soto-Acosta, 2010; Malhotra & Temponi, 2010; Maine, Shapiro & Vining, 2010). According to the Ethiopian Ministry of Trade and Industry (2010) and the Ethiopian Central Statistics Authority (2010), small and medium-sized enterprises in Ethiopia are defined based on their

capital and the number of employees they have. Small enterprises have a capital of 2, 250 to 56, 000 American Dollars, and have fewer than 10 employees who use motor-operated equipment. By contrast, medium enterprises have a capital of between 56, 000 and 100, 000 American Dollars, and have between 10 and 20 employees who use motor-operated equipment.

Alemayehu (2006) had reported that the Commercial Bank of Ethiopia had an excess liquidity of 165% in 2008. However, the extent of excess liquidity in the Commercial Bank of Ethiopia has gradually decreased significantly in the years between 2009 and 2011 according to the 2011 annual report issued by the Commercial Bank of Ethiopia (2011). As such, there is no basis for assuming that reserves accumulated in the Commercial Bank of Ethiopia are underutilized. In the past few years, the Ethiopian Government has encouraged foreign money lending institutions to participate in the local financial services sector, but this effort has to be promoted vigorously in order to achieve a meaningful result. The policy discourages foreign enterprises from entering the local market, thereby eliminating potential competitors to the state-owned Commercial Bank of Ethiopia. It is impossible to meet the growing financial demands of small and medium-sized enterprises without attracting foreign financial institutions into the local market. The study conducted by Bekele and Worku (2008) has shown that attracting foreign service providers and competitors into the local financial market has the potential for alleviating the acute shortage of finance experienced by small and medium-sized businesses and enterprises. A similar recommendation has been made by Dougherty (2009) as a means of alleviating abject poverty in the world's least developed nations. Research findings reported by Marks and Huzzard (2010), Martinez-Caro & Cegarra-Navarro (2010), Jonsson & Lindbergh (2010), and McAdam, Moffett, Hazlett & Shelvlin (2010) show that there is a statistically significant relationship between the ability of nations to attract and entice global competitors in the financial sector and sustainable growth and development in locally based small and medium-sized enterprises. Researchers such as Coelho and Matias (2010) and Doom, Milis, Poelmans and Bloemen (2010) have shown that the ability to attract foreign direct investment is directly related to willingness to allow foreign service providers and competitors into the local market. The majority of small and medium-sized enterprises in Ethiopia experience lack of access to finance on favourable terms from formal money lending institutions such as commercial banks. As a result, they routinely raise finance needed for operation from iqqub schemes (financial associations that lend interest-free money contributed by members to one member of the scheme at a time). Iqqub schemes are similar to South African Stokvels or informal clubs that serve as a rotating credit union where members contribute fixed sums of money to a central fund on a weekly or monthly basis so that the lump sum could be provided to one member of the club at a time as an interest-free loan. No collaterals are needed to collect lump sums. Winners of lump sums are decided by random means such as ballot papers. It is too difficult for small businesses to meet the demand for collateral, and pay off the rather high interest rates imposed on borrowers by the commercial banks (Bekele and Worku, 2008).

Between 2002 and 2010, loans provided by iqqub schemes have been utilized by 69% of businesses in this study. However, iqqub schemes operate on cyclic basis, satisfying the demand of only one member at a time. Other members must wait their turn. The last member receives a lump sum only at the very end of the cycle. The rather lengthy waiting period in iqqub cycles often results in the loss of a golden investment opportunity, loss of valuable time, loss of resources and money, etc. Iqqub schemes vary in size and capacity. Large iqqub schemes are often located in major towns, and generate a lump sum of about 100, 000 American Dollars per week. Small iqqub schemes are located in small towns and rural communities, and have smaller lump sums. In this particular study, 61% of businesses that survived the period of study have had to borrow money from iqqub schemes. By contrast, only 18% of non-survivors raised money from iqqub schemes. This evidence shows that it is worthwhile to support and improve the capacity of indigenous iqqub schemes in Ethiopia so that they can lend more money to more small businesses at the same time. Doing so however, requires a favourable macro-economic policy that enables foreign competitors to come into the local financial market and provide badly needed assistance to small businesses and enterprises based on recommendations made by Sun and Liu (2010), Wennberg & Lindqvist (2010) and Zhang (2010). Drastic measures should be taken in order to alleviate the acute shortage of finance experienced by small and medium-sized enterprises in Ethiopia.

Objective of study

The key objective of study is to find out whether or not social capital, in the form of participation in iqqub schemes, is influential over the long-term survival and viability of small and medium-sized enterprises in Ethiopia.

Research questions of study

The study has the following two research questions:

- What factors significantly influence the long-term survival and viability of small and medium-sized enterprises in Ethiopia?

- Is social capital, in the form of participation in iqqub schemes, an influential predictor of long-term survival and viability in small and medium-sized enterprises in Ethiopia?

Methods and materials of study

Data were gathered from each of the 407 enterprises selected for the study on socioeconomic variables such as duration of operation, amount of startup capital, level of education of business operators, level of skills of business operators, suitability of business premises, level of support provided by the Ethiopian Ministry of Trade and Industry to business operators, source of finance, amount of loan borrowed by business operators, profit made, total revenue, operational cost, access to training opportunities on business operations, supervisory assistance, tax amount, method used for tax assessment, access to supplies needed by businesses, demand for goods and services in the local market, perception on level of assistance provided by the government, etc. Data collection was made on a monthly basis during the period of study. Supervisory assistance was provided by the Ethiopian Ministry of Trade and Industry in Addis Ababa as well as its five regional offices at the geographical regions of study. Data collection was done with funding from the Christian Relief Development Agency (CRDA) and the Ethiopian Micro Finance Association in Addis Ababa, Ethiopia. Analysis was done using the Cox proportional hazards model (Cleves, Gould & Gutierrez, 2004) in view of the fact that some of the 407 businesses in the study were right censored. Hazard ratios were obtained for key influential predictors of survival. Kaplan-Meier survival probability curves were used for comparing viable and non-viable businesses in terms of survival probabilities. Descriptive and summary statistics were also obtained. The adequacy of the fitted Cox regression model was assessed using the likelihood ratio test and Akaike's information criterion (AIC) statistic. The fulfillment of the proportional hazards assumption was tested by use of log-minus-log plots. Data analysis was done using the statistical package STATA version 12 (STATA Corporation, 2011).

In each of the 407 businesses that took part in the study, the duration of survival was measured by using 01 January 2002 as the starting point. Enterprises that were still operational at the end of the study period (31 December 2010) were considered right-censored observations as their exact durations of survival could not be measured due to administrative censoring (inability to measure the survival times of businesses beyond the date at which the study came to an end) at the end of the study period. For enterprises that ceased operation prior to 31 December 2010, survival time was defined as the number of days of operation between 01 January 2002 and the date of closure.

The Cox Proportional Hazards Model takes censored observations into account, and this property of the model makes it quite attractive in comparison with other models used for survival analysis in economic studies (Cleves, Gould & Gutierrez, 2004; Kleinbaum, 1996). In Cox regression, hazard ratios are used as an econometric measure of effect. Key predictors of survival are identified and estimated based on hazard ratios. Kaplan-Meier survival probability curves were used for comparing businesses that survived the 9-year study period (survivors) with businesses that did not survive the study period

(non-survivors) with regards to key predictors of survival. Kaplan-Meier survival probability curves were used for comparing survivors with non-survivors graphically. At the 5% level of significance, influential predictors of survival are characterized by hazard ratios that differ from 1 significantly, 95% confidence intervals of hazard ratios that do not contain 1, and P-values that are smaller than 0.05.

Results of data analysis

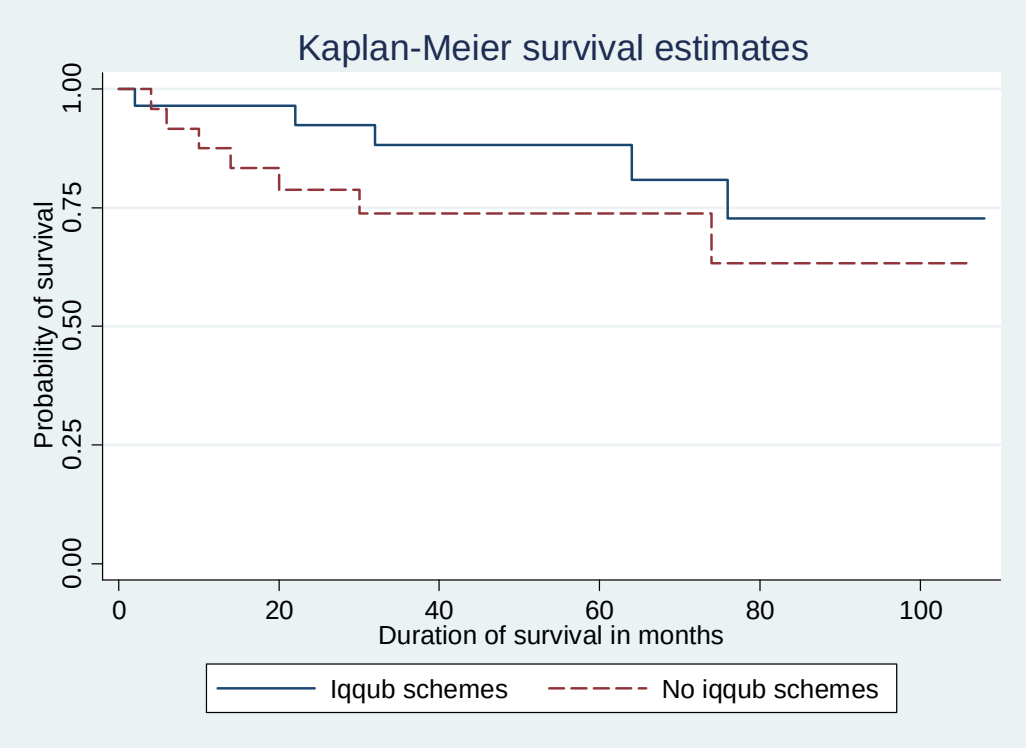
Table 1 shows the distribution of factors that affect the long-term survival of enterprises. The table shows frequency proportions of 6 key predictors for survivors and non-survivors. In the 9-year study period, 86 of the 407 businesses in the study (21.13%) have failed while the other 321 businesses (78.87%) have managed to survive. The table shows that 61% of survivors used iqqub schemes for raising finance needed for conducting business whereas only 18% of non-survivors did the same. Managerial skills were inadequate in 37% of survivors and 79% of non-survivors. The table also shows that managers of the 86 businesses that failed during the 9-year period of study are characterized by poor technical skills, low level of training in basic entrepreneurial skills, poor formal education, and past experience of bankruptcy.

Table 1: Group proportions with regards to long-term survival

Predictor variable	**Survivors (n=321)**	**Non-survivors (n=86)**
Participation in iqqub schemes for raising finance	No: 39% Yes: 61%	No: 82% Yes: 18%
Level of managerial skills of business manager	Inadequate: 37% Adequate: 63%	Inadequate: 79% Adequate: 24%
Level of technical skills of business manager	Inadequate: 35% Adequate: 65%	Inadequate: 76% Adequate: 24%
Regular training on basic entrepreneurial skills	No: 34% Yes: 66%	No: 74% Yes: 26%
Formal education of business manager	Primary or less: 33% Above primary: 67%	Primary or less: 71% Above primary: 29%
Experience of prior bankruptcy	Yes: 28% No: 72%	Yes: 64% No: 36%

Kaplan-Meier survival probability plots were used for comparing the survival probabilities of businesses with regards to participation in iqqub schemes. The plot shows that businesses that participated in iqqub schemes have a larger probability of survival in comparison with businesses that did not participate in iqqub schemes.

Figure 1: Kaplan-Meier survival probabilities by participation in iqqub schemes



Hazard ratios estimated from Cox regression are presented in Table 2. The table shows that the survival of businesses is most strongly influenced by 6 of the 19 predictor variables used for survival analysis. These 6 influential variables are poor access to finance, poor managerial skills, poor technical skills, poor regular training opportunities, poor formal education, and past bankruptcy, in a decreasing order of strength. The most influential predictor variable affecting the survival of businesses is access to finance.

Table 2: Adjusted hazard ratios from the Cox Proportional Hazards Model

Variable	*Adjusted Hazard Ratio	P-value	95% C.I.
Poor access to finance	5.24	0.000	(3.59, 9.77)
Poor managerial skills	4.68	0.000	(3.22, 8.99)
Poor technical skills	3.58	0.000	(2.63, 7.66)
Poor regular training	3.47	0.001	(2.45, 7.55)
Poor formal education	3.46	0.002	(2.44, 7.54)
Prior bankruptcy	2.88	0.004	(1.08, 6.36)

* Adjustment was done for geographical region, age of owner and gender.

Hazard ratios estimated from the Cox Proportional Hazards Model are interpreted as follows: The hazard ratio of the variable poor access to finance is 5.24. This shows that businesses that do not have

access to finance are 5.24 times more likely to fail in comparison with businesses that have adequate access to finance. As high as 61% of the 321 survivors raised finance required for routine operation from iqqub schemes, whereas only 18% of non-survivors did the same. The hazard ratio of the variable poor managerial skills is 4.68. This shows that businesses that are managed by operators with poor managerial skills are 4.68 times as likely to fail in comparison with businesses managed by operators with adequate managerial skills. The hazard ratio of the variable poor technical skills is 3.58. This shows that businesses that are operated by managers with poor technical skills are 3.58 times more likely to fail in comparison with businesses that are operated by owners with adequate technical skills. Adjustment was done for three potential confounding variables: geographic region, age of owner and gender of owner. Unadjusted and adjusted hazard ratios did not differ much. This shows that none of the three variables used for adjustment was a confounding or effect modifying variable. The adequacy of the fitted Cox model was assessed using log-minus-log plots, the likelihood ratio test and the AIC (Akaike's Information Criterion) as diagnostic procedures. All log-minus-log plots were parallel, showing that the assumption of proportional hazards was satisfied.

The P-value from the likelihood ratio test was small ($0.0001 < 0.01$), thereby showing that the 6 variables constituting the fitted Cox model were jointly efficient in explaining variability in long term survival at the 1% level of significance. The estimated value of the AIC statistic was also small (10.32), thereby showing that the discrepancy between the fitted and true models was insignificant (Verbeek, 2000).

Discussion of results

The results clearly show that businesses that utilized finance from iqqub schemes on a regular basis have survived much better than those who did not do the same. The majority of small and medium-sized enterprises in Ethiopia are denied access to credit from formal financial institutions such as commercial banks. Iqqub schemes could be viewed as a form of social capital in which participants generate financial and non-financial benefits such as interest-free loans, savings, the exchange of productive information and vital knowledge, skills and innovative ideas. As a result, members of iqqub schemes empower themselves in areas that are relevant to their basic needs. Economic output is improved, and challenges are overcome collectively. Money obtained from iqqub schemes is much cheaper than money borrowed from commercial banks, and comes with fewer stringent conditions. Businesses that have participated in iqqub schemes have generally survived much better than those that did not do the same. While iqqub schemes have managed to fill the gap left open by formal money lending institutions at least partially, they lack the capacity to provide assistance to all members of the scheme at the same time. This limitation of iqqub schemes could be addressed by the national government. This course of action has already been taken by the Grameen Bank of Bangladesh, and has yielded tangible success in terms of the alleviation of abject poverty among the poor, the unskilled and the uneducated (Daley-Harris, 2011) and Zhang (2010). The key findings of this study are in agreement with results reported by Jiang & Mike (2011), Globerman, Peng & Shapiro (2011), Zoogah, Vora, Richard & Peng (2011), and Peng, Rabi & Sea-Jin (2010) as well as Murphy (2006). As was found in the first round of study, the second round of study has also shown that technical skills and formal education are both crucial for the long-term survival of small and medium-sized enterprises. The microfinance industry and donor-supported low interest loans are also available as alternative forms of finance to small, micro and medium-sized enterprises in Ethiopia. However, the stringent conditions imposed by microfinance institutions and donors make these alternative forms less appealing to entrepreneurs in the SMME sector of Ethiopia (Degefe, 2009).

The Ethiopian curriculum of education does not prepare potential entrepreneurs adequately for the task. The content of the curriculum for vocational training at the high school and undergraduate level is vastly inadequate and irrelevant to the specific needs of young graduates who aspire to thrive in business. This failure constitutes a major obstacle to the growth and development in small and medium-sized businesses and enterprises in Ethiopia. The managerial skill of owners of enterprises has been shown to have a significant influence over long term survival. This finding is in agreement with the findings of

(Alemayehu, 2006) in which it was reported that successful businesses and enterprises are characterized by owners and operators with well demonstrated managerial skills. Managerial ability was assessed in terms of the ability of owners or operators to produce sound business plans, perform standard bookkeeping, auditing and record-keeping duties, introducing appropriate technologies and expertise, acquiring innovative business skills from rival enterprises, degree of motivation and commitment in sharing useful experience with employees, commitment in terms of empowering employees, investing in skills related training opportunities for employees, ability in resolving business related disputes amicably, etc. Successful businesses and enterprises were associated with managers who enjoyed what they were doing, whereas unsuccessful businesses and enterprises were associated with mangers with little or no motivation and commitment. Maine, Shapiro and Vining (2010) have shown that small and medium-sized enterprises need to be supported so that they can cut down their operational cost by utilizing modern technology and entrepreneurial techniques. It would be prudent to follow the example set out by the Gramen Bank of Bangladesh (Dowla, 2005) in providing small businesses and enterprises with the finance they need for sustained growth. Providing small businesses with adequate finance has been shown to be critically important for the growth of national economies in Asia (Globerman, Mike and Daniel, 2011).

Conclusion

This study has found that 61% of businesses that survived the 9-year long study period have borrowed finance from iqqub schemes (social capital), and that only 18% of non-survivors did the same. The study also shows that the long-term survival and viability of enterprises is significantly influenced by the possession of adequate managerial and technical skills, and regular training opportunities. As is the case in any part of the world, entrepreneurs working in small businesses and enterprises in Ethiopia require access to finance in order to succeed. Although the small and medium enterprises sector contributes significantly to the national economy by creating jobs and alleviating abject poverty among the masses, the sector has so far not been given due recognition that is commensurate with its level of contribution. Based on findings of this particular study, lack of access to finance from formal money lending institutions such as commercial banks and micro finance institutions is one of the leading causes of failure in small businesses and enterprises in Ethiopia. Commercial banks demand exorbitant collaterals that cannot be easily produced by small businesses and enterprises. Interest rates of micro finance institutions are not affordable to small and medium businesses and enterprises. Formal money lending institutions have so far failed to produce innovative, affordable and user-friendly financial products and services with a particular view to assist the struggling sector in Ethiopia. Although it has been extensively reported in the literature that formal money lending institutions such as commercial banks are reluctant to lend money to small businesses and enterprises or to bend the stringent rules they have imposed on the sector, not enough has been done by the national government of Ethiopia to intervene in favour of the struggling sector. The gap left wide open by formal money lending institutions has been partially filled in by iqqub schemes. However, iqqub schemes are vastly under resourced, and can only provide finance to one member at a time. The other problem with iqqub schemes is that they are not regulated, and members are often abused in a number of ways. There is a dire need to have iqqub schemes regulated, monitored and evaluated on a sustainable basis. Unless iqqub schemes are regulated, they can be easily abused. Pyramid schemes show what could happen in cases where governments fail to regulate financial schemes that are based on social capital. For this reason, integrating iqqub schemes with the Commercial Bank of Ethiopia and having them regulated, monitored and evaluated on a sustainable basis has the potential for contributing for the pool of finance available for small, micro and medium-sized enterprises in Ethiopia.

It is worth noting that iqqub schemes are not free of problems. In fact, the schemes are associated with numerous operational challenges, and often lead to unforeseen problems. For example, money obtained from iqqub schemes does not necessarily reflect the exact cost of borrowing capital in the local market in Ethiopia. When members of iqqub schemes borrow money, members who do not get lump sums spend valuable time while waiting their turn. Furthermore, memberships of iqqub schemes are regularly bought and sold at a discount premium. As such, iqqub schemes are not strictly interest free. Relatively low

interest rates charged by the Commercial Bank of Ethiopia continue to attract a large number of applicants, and this often inflates the cost of borrowing finance higher and more difficult than it has to be. Furthermore, there is a link between the level of trust among members of iqqub schemes the cost of capital. High level of trust is associated with low cost of borrowing capital, whereas low level of trust is associated with high cost of borrowing capital.

Regardless of the difficulties and shortcomings listed above, there is benefit in linking up iqqub schemes with the formal economy and having the schemes regulated, monitored and evaluated by an independent and suitably equipped body. There is an ideal opportunity for a fruitful strategic collaboration between iqqub schemes and formal money lending institutions such as commercial banks and micro finance institutions. This can be achieved by making more money available to iqqub schemes and by integrating iqqub schemes with formal money lending institutions so that commercial banks and micro-finance institutions have access to the millions of clientele belonging to iqqub schemes. This remedial action is informed by the dramatic success achieved by the Grameen Bank of Bangladesh. By integrating the two sectors, it is possible to broaden the market base of banks while increasing the capacity of iqqub associations to satisfy demands for finance from all members of iqqub associations, or at least to shorten the usually long waiting period needed to be awarded a lump sum of money. Such a partnership creates a win-win situation for both parties as the collective collateral guarantee of iqqub schemes minimizes the risk of default and high costs of advancing a series of small credits to several borrowers at the same time (Dowla, 2005; Dougherty, 2009).

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