AFRICAN EXPORTING FIRMS IN THE TURMOIL OF THE GLOBAL FINANCIAL CRISIS

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ABSTRACT

Since late 2008, countries around the world have been affected by the global economic slowdown. The crisis had serious implications for low income countries; in particular, those which are highly dependent on trade, foreign investment, and remittances to meet economic growth and social needs. Most studies have focused on the collapse in primary commodity exports as the main effect of the crisis on African countries. This paper adopts a different approach by examining the impact of the recent global financial crisis on exporting firms in the manufacturing and services sectors in low income countries of the African continent. The paper investigates the impact of the global financial crisis on three Sub Saharan African economies namely Burkina Faso, Malawi and Niger using firm level data from the World Bank Enterprise Survey. The study analyses export behaviour of 1,118 firms in these three nations in 2005 and 2009. The findings reveal that the recent economic downturn has impacted negatively on the firm's decision to enter the export markets. This result is consistent across Malawi and Burkina Faso while the result is statistically insignificant for Niger.

1. INTRODUCTION

Since 2000, the African region has had an average growth rate of real output above 5 per cent and inflation has declined to single digit. There have been significant improvements in governance and a reduction in armed conflicts, making the region more attractive for private capital flows. The world economic crisis brought a period of relatively high economic growth in Africa to a sudden end. The crisis has been a serious setback for Africa at a time when the continent was making progress in economic performance and management. Average economic growth was slashed from about 6 per cent in 2006-2008 to 2.5 per cent in 2009 with per capita GDP growth coming to a near standstill. Given the heterogeneity of African countries, the crisis affected some countries much more than others. The least developed countries (LDCs) of Africa have been hit particularly hard because of their inherent weaknesses and limited capacity to absorb external shocks.

In 2000–2005 Africa recorded one of the highest rates of manufactured export growth in the world, driven by a large geographic shift in production towards Africa, mainly at the expense of Latin America, the Middle East and North Africa and the OECD. The production shift towards Africa, however, was the consequence of the industrial recovery in only one country, South Africa. When South Africa is removed from the Africa sample the geographical shift in production makes a small contribution to manufactured export growth (Page, 2009). This production shift was further exacerbated by a fall in export propensity between 2000 and 2005. The decline in Africa's manufacturing base is a problem, but it has also been accompanied by a decline in the diversity of the region's manufacturing sectors and a fall in the

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sophistication of its production techniques. The industrial performance of Sub-Saharan Africa (SSA) lags behind all other regions. Bangladesh alone produces as much manufacturing value added as the entire region of SSA, excluding South Africa (Page, 2009).

In terms of expanding and diversifying its manufacturing sector, Africa still remained on the sidelines compared to other developing countries. Africa's marginalization might have provided a cushion against the worst consequences of the recession in global manufacturing. With little to produce and sell, little potential output is lost. But "Africa is not a country". While the global down turn only has a limited impact on manufacturing activity for the region as a whole, traditional exporters were affected. It is also possible that a number of African manufacturers namely economies that have recently begun to develop manufactured exports like Ethiopia and Zambia, suffered a decline in demand and output. Further, the services sector, which is the recent growth engine of the African economies, also felt the slow down. African economies were among the least exposed to the global financial system of any world region, and African banks hold few of the "toxic assets" that helped spark the crisis. However, as the financial crisis deepened into a global economic recession, African economies experienced strong negative effects due to tighter financing conditions overseas, and a drop in foreign direct investment and other capital inflows. Additional revenue streams such as tourism have also declined.

The objective of the paper is to investigate the impact of the global financial crisis on exporting firms in manufacturing and services sector in least developed economies of the African continent. Using firm level data from the World Bank Enterprise Survey, the paper examines the effect of the recent economic downturn on the export status of 1,118 firms in Burkina Faso, Malawi and Niger between 2005 and 2009. These three countries were the only low income nations where data was collected by the World Bank in 2005/2006 and in 2009 (which registered most of the impacts of the financial crisis). We argue that African firms, particularly exporters, have been more affected than non-exporting firms. In addition, the impact has been pronounced on both the firm's decision to enter the world market.

The paper is structured as follows. Section 2 reviews the effects of the financial crisis on LDCs in Africa. Section 3 reviews the characteristics of the three low income countries namely Burkina Faso, Malawi and Niger. Section 4 analyses the firm level data from the World Bank Enterprise survey and sets out the methodology. Section 5 presents the findings and we finally conclude in section 6.

2.   THE FINANCIAL CRISIS AND LDCs IN AFRICA

Least developed economies have been more vulnerable to the financial crisis due to their weak economic structure, close integration into the world economy, dependence on primary commodities and foreign financial flows and, in most cases, a high degree of indebtedness. Further, they faced external shocks resulting from the global recession at a time when most of them were suffering from the food and fuel crisis. In most small and vulnerable developing countries, the crisis has since the second quarter of 2009 reversed global GDP growth, caused sharp reductions in exports, fall in worker's remittances and foreign direct investment and access to finance and triggered declining fiscal revenues. It has also raised demands for social service provision and the maintenance of social safety nets and substantially increased levels of unemployment.

Meanwhile, the LDCs in Africa have made limited progress in industrial development in the past four decades. One major reason is that domestic industries were hindered and even damaged by the steep reductions of industrial tariffs. Even during periods of strong investment and growth, their manufacturing sector failed to take off (UNCTAD, 2009). The manufacturing sub-sectors are still comparatively weak; and there are rarely large domestic industries. A light manufacturing, labour-intensive model is typical of the manufacturing sector in LDCs. The situation is reinforced by the fact that foreign direct investment inflows are predominantly focused on the raw materials sector and there has been little achievement in boosting the industrial productive capacity of LDCs. In addition, the fragility of their manufacturing sector is further explained by the industry's lack of supply capacity and competitiveness in internal and international markets. Many African countries have moved gradually to the services sector. Although African banking systems were not directly exposed to the sub-prime crisis, there were strong indications of increased asset price and risk premium volatility on African financial markets. The contagion and interdependence significantly affected the region's financial

markets. For some African markets like Egypt and Nigeria, the impact was much higher than for markets in developed countries (Kasekende, et al, 2009). African investors, in general, recorded within six months an average loss of more than half the wealth invested at the end of July 2008. This is higher than the losses recorded in American, French and Japanese markets (Kasekende, et al, 2009).

Tourism has also suffered a big hit from the crisis as a result in declining incomes in developed and emerging countries, where most tourist flows originate. Both arrivals and receipt have declined substantially in many countries. For instance, Kenya announced a 25 percent to 30 percent decline in tourist arrivals. Kenya Airways posted a 62.7 percent drop in profit for the half-year at the end of September 2008. Similarly, Egypt announced a 40 percent cancellation of hotel reservations. The Seychelles announced a 10 percent fall in tourism revenue. The decline in tourism would have a negative impact on the services sector, which was becoming a key growth engine prior to the crisis. This calls for further efforts towards diversification not only of the services sector but also of the entire economy.

The global financial crisis has impacted Africa's primary sector as well as its manufacturing sector, besides both are highly integrated. Through its supply effects, the primary sector contributes to the supply of imported capital goods and intermediate products required for capacity expansion and utilization in the manufacturing sector. Through its income effect, exports of primary commodities contribute to the generation of domestic demand for industrial products. Hence, the collapse in primary commodity exports has affected the performance of the manufacturing sector in low income countries. The slump in trade of manufactured goods and services has been associated with a sharp deterioration of demand and activity worldwide, deterioration which has been particularly severe in the rich club of OECD countries (Araujo and Oliveira-Martins, 2009). The impact of demand on trade has been worsened by the role of inventories (Alessandria, et al. 2010). The increasing dominance of manufacturing models relying on internationally fragmented supply chains (Tanaka 2009, Yi,

2009) may have magnified the impact of the drop in activity on international trade. Very little work has, however, focused on the impact of the financial crises on exports, the latter being usually considered as obvious or traditional. However, among the few studies (Ma and Cheung, 2003), the findings are ambiguous.

3. COUNTRY CHARACTERISTICS AND MACROECONOMIC PERFORMANCE

Three low income countries namely Burkina Faso, Malawi and Niger were selected for the study depending on the availability of data from the World Bank Enterprise Survey for least developing countries. Data was collected well prior to the financial crisis that is in 2005 and in 2009; whereby firms experienced most of the effects of the global economic downturn. In Burkina Faso, agriculture represents 32 percent of its GDP while manufacturing is only 12 percent of GDP. The economy is insufficiently diversified and heavily dependent on gold and cotton exports. With the effects of the energy, cotton, food and financial crises, growth rate slowed down from 5.2 percent in 2008 to 3 percent in 2009. Growth is projected to pick up again in 2011, with rate of 5.2 percent (African Economic Outlook, 2010). Malawi is also one among the world's least developed and most densely populated countries. The economy is heavily agriculture-based where agriculture accounts for 35 percent of GDP, industry for 19 percent and services for the remaining 46 percent. Malawi has weathered the impact of the global economic crisis relatively well. Estimated at 7 percent, growth in 2009 remained robust although slower than the 9.8 percent achieved in 2008. Further, Niger's economic growth in 2009 fell by 0.9 percent, after rising by 9.5 percent in 2008. The primary sector constitutes the backbone of Niger's economy, contributing 43.3 percent of GDP in 2009. Despite its agricultural nature, Niger imports more than 60 percent of its food needs. The secondary sector is dominated by extractive industries, like energy and construction but represented only 11 percent of GDP. The tertiary sector makes up for 38.5 percent of GDP. The performance of the four economies in terms of real GDP growth from 2001 to 2011 (African Economic Outlook, 2010) is shown by Figure 1 below.

FIGURE 1

Real GDP Growth Rate
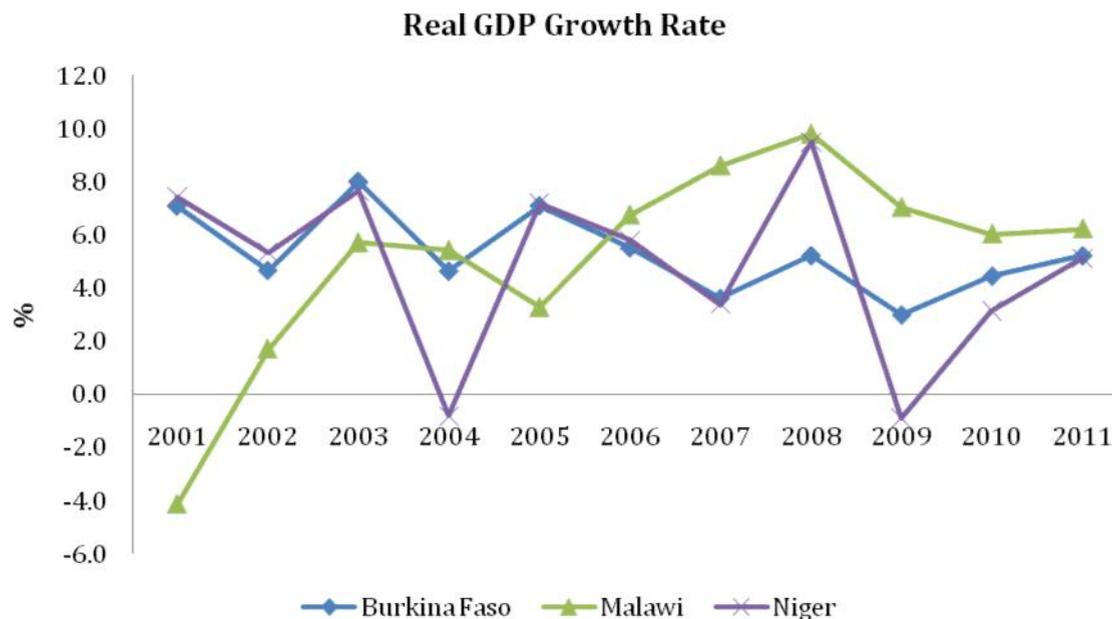
Source: African Economic Outlook, 2010

We note that real GDP growth rate dropped drastically in 2009, the largest fall has been for Niger's economy followed by Burkina Faso and then Malawi. Burkina Faso and Niger have not only faced the setbacks of the world economic downturn but also declining food prices and export prices. Malawi, in turn, has been in a better position to circumvent the effect of the global financial crisis.

4.   DATA   AND   ESTIMATION METHODOLOGY

4.1.   Data Source

We use data from the World Bank Enterprise Survey for 1,118 firms in the manufacturing and services sectors of Burkina Faso, Malawi and Niger for the period 2005/2006 and 2009. The firms are mainly from the food, metals and machinery, electronics, garments and textiles and chemicals and pharmaceuticals industries, hotels, transportation and construction.

Table 1: Firms in the Sample for Burkina Faso, Malawi and Niger

Country	Year	Number of Firms	Small	Medium	Large	Exporting Firms (%)
		Sample Composition by Size				**Exporting Firms (%)**
Burkina Faso	**2006**	139	106	27	6	11.51
	2009	394	226	108	60	6.09
Total Number of Firms in Burkina Faso		**533**	**332**	**135**	**66**	
Malawi	**2005**	160	19	83	52	24.38
	2009	150	45	54	51	12.00
Total Number of Firms in Malawi		**310**	**64**	**137**	**103**	
Niger	**2005**	125	86	35	4	20.80
	2009	150	87	52	11	14.00
Total Number of Firms in Niger		**275**	**173**	**87**	**15**	

Source: World Bank Enterprise Survey

We observe that most firms across Burkina Faso and Niger are mainly small firms while the firms in Malawi are essentially medium-sized firms. In addition, the percentage of exporting firms has declined in Burkina Faso and Malawi from 2005/2006 to 2009. Further, from table 2 below, we note that 72 percent of the firms surveyed in 2006 and 2009 are from the services sector, while in Malawi and Niger, 26 and 37 percent of firms are respectively in the services sector. The manufacturing sector is well represented in Malawi and Niger with 74 percent and 63 percent of firms respectively.

Table 2: Sectoral Distribution of Firms in the Sample for Burkina Faso, Malawi and Niger

	Firms in the Manufacturing Sector (%)	Firms in the Services Sector (%)	Total Number of Firms
Burkina Faso	28	72	533
Malawi	74	26	310
Niger	63	37	275
Total	49	51	1,118

Source: World Bank Enterprise Survey

4.2. Estimation Methodology

We estimate the following export equation:

$$Exports_{jt} = \beta_0 + \beta_1 FirmAge_{jt} + \beta_2 Size_{jt} + \beta_3\, ln\, Sales_{jt} + \beta_4\, ln\, Capital_{jt} + \beta_5 CapCity_{jt}$$
$$+ \beta_6 Foreign_{jt} + \beta_7 State_{jt} + \beta_8 Year\, 09 + Sector + Country + v_{jt} \qquad (1)$$

where *j* represents firm and *t* is time. *Exports* is a dummy variable taking the value of 1 for the exporter and 0, otherwise. *FirmAge* represents the number of years the firm has been in operation in a particular country. *Size* denotes the firm size ranging from a small to medium sized and large firm size and *lnSales* is total annual sales of the establishment which measures the performance of the exporting firm. *Lncapital* is log of the firm's expenditure on the

purchases of machinery, vehicles and equipment. CapCity is the location of the firm in the city centre where dummy is equal to 1 and 0 if the firm is situated outside the capital city. *Foreign* is a dummy with value of one if the firm is owned by foreign individuals, companies or organisations and 0, otherwise. *State* is a dummy variable having a value of one if the firm is state-owned and zero otherwise. *Sector* covers industry dummies namely the food, metals and machinery, electronics, garments and textiles and chemicals and pharmaceuticals industries. The services sector includes firms from retail and wholesale trade, hotel and restaurant, construction and transport, among others. *Year09* captures the effect of the global financial crisis in 2008 and 2009, the period during which the firms were interviewed. *Country* represents country dummies. We perform some preliminary checks to detect the presence of major outliers and to test for heteroscedasticity. This is done using the Cook and Weisberg (1983) test. We also use the Shapiro-Wilk test for normal data and the Kernel density estimates from STATA to test for the normality of the residuals. Since there is no serious problem, we use logistic regression technique as the dependent variable is discrete. The logistic regression technique is explained in the Appendix.

5. FINDINGS

From equation (1) above, the logistic regression results are shown by table 3 below. We note that the sales level which measures the performance of firms impacts positively on the decision of the firm to export on foreign markets. Firm's age matters in Burkina Faso. *Year09* captures the events which have occurred in 2009 namely the energy, cotton, food and financial crises. Our results reveal a significant and negative coefficient across all countries except for Niger. We can argue that the negative coefficient also encompasses the effect of the financial crisis on exporting firms, which is more pronounced for exporters compared to non-exporting firms. Capital intensity is statistically insignificant, revealing that firms do not invest much in new technology and advanced production techniques.

Table 3: Impact of the Financial Crisis on Exporting Firms in Low Income Countries of SSA

	Malawi	Burkina Faso	Niger	All 3 Countries
Infirmage	0.005	0.018*	-0.018	0.007
	(0.022)	(0.011)	(0.027)	(0.009)
Insales	0.055***	0.005	0.034**	0.023***
	(0.014)	(0.005)	(0.018)	(0.004)
Incapital	0.002	0.001	0.003	0.001
	(0.003)	(0.001)	(0.003)	(0.001)
Capcity	-0.030	-0.015	-0.430***	-0.044**
	(0.048)	(0.022)	(0.132)	(0.020)
Medium	-0.060	0.039	-0.066	-0.004
	(0.078)	(0.035)	(0.047)	(0.020)
Large	-0.005	0.122	-0.041	0.034
	(0.084)	(0.112)	(0.149)	(0.033)
Foreign	0.043	-0.028**	0.171*	0.017
	(0.053)	(0.013)	(0.095)	(0.021)
State	-0.025	-0.013	_	-0.048**
	(0.097)	(0.034)	_	(0.021)
Year09	-0.130***	-0.062*	-0.018	-0.073***
	(0.046)	(0.035)	(0.070)	(0.022)
Country	_	_	_	Yes
Sector	Yes	Yes	Yes	Yes
No of Observations	248	497	165	946

Notes: (a) Dependent variable is Export Status of Firms (Dummy Variable = 1 if exporter and 0, otherwise);
(b) Robust absolute standard errors in parentheses;
(c) * significant at 10 per cent; ** significant at 5 per cent; *** significant at 1 per cent

6.   CONCLUSION

Overall, our results show that the crisis has affected exporters in the low income countries of the African region, after controlling for the sectoral specialization, different sizes, sales level, ownership structure, location and capital intensity of the firms. The conclusions about 2009 external factors including the impact of the financial crisis appear to be more significantly negative for exporters in the least developed world.   Three out of four countries show a negative effect of the year 2009 on their likelihood to enter the export market. We can say that entrance on the export market was hindered by an important fall in demand worldwide, compounded by composition and value chain effects.

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APPENDIX

Logistic regression also called logit model is used for prediction of the probability of occurrence of an event by fitting data to a logit function logistic curve. It is a generalized linear model used for binomial regression. Like many forms of regression analysis, it makes use of several predictor variables that may be either numerical or categorical. Logistic regression is as an alternative technique to overcome limitations of Ordinary Least Squares (OLS) regression in handling dichotomous outcomes.

The logistic function, which, like probabilities, always takes on values between zero and one:

$$f(z) = \frac{e^z}{e^z + 1} = \frac{1}{1 + e^{-z}}$$

The input is z and the output is $f(z)$. The logistic function is useful because it can take as an input any value from negative infinity to positive infinity, whereas the output is confined to values between 0 and 1. The variable z represents the exposure to some set of independent variables, while $f(z)$ represents the probability of a particular outcome, given that set of explanatory variables. The variable z is a measure of the total contribution of all the independent variables used in the model and is known as the logit.

Logistic regression uses a maximum likelihood to get the estimates of the coefficients. The coefficients in the output of the logistic regression are given in units of log odds (that is logarithm of the odds). The coefficients indicate the amount of change expected in the log odds when there is a one unit change in the predictor variable with all of the other variables in the model held constant.

The variable z is usually defined as

$$z = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \cdots + \beta_k x_k,$$

where β_0 is the "intercept" and β_1, β_2, β_3, and so on, are the "regression coefficients" of x_1, x_2, x_3 respectively. The intercept is the value of z when the value of all independent variables is zero. A positive regression coefficient means that the explanatory variable increases the probability of the outcome, while a negative regression coefficient means that the variable decreases the probability of that outcome.