

# The effects of the Global Financial Crisis on exports in Least Developed Countries\*

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One of the main channels through which the global downturn has hit developing countries is via its effects on trade. This paper looks specifically at the trade impact on the Least Developed Countries (LDCs), a group of countries which is on average relatively more dependent on exports than other developing countries. This analysis is particularly relevant for sub-Saharan Africa as the LDC group includes more than half of the countries in the region. We estimate the effects on exports in each of these countries by developing trade resilience indices on the basis of the sectoral and market composition of their exports. The results suggest a large variability in the effects across LDCs. Such effects are driven in particular by countries' sectoral specialisation, with mineral and fuel exporters being the worst hit by the downturn, while agricultural (and gold) exporters showing substantial resilience. The sectoral ranking of the effects is consistent with the expected relative income elasticities of demand for different goods, with minerals and fuels being the worst hit by the crisis. The findings are corroborated by the analysis of the actual changes in EU and US imports from LDCs. On the basis of the analysis we draw some policy implications aimed at countering the trade-related impact of the current crisis and at building resilience to such crises in the future.

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## 1. Introduction

Trade is a key transmission mechanism of the global financial crisis (GFC) for least developed countries (LDCs), as it links them to markets that are heavily affected by the financial crisis via changed terms of trade and export demand. This is more the case for LDCs than for other developing countries as they are relatively more dependent on trade. The scarce integration of these countries with international financial markets has sheltered many of these countries from the financial effects of the crisis, making trade a relatively more important transmission mechanism of the crisis. In addition LDCs' exports tend to be more concentrated than those of other developing countries. This combination of factors makes LDCs more exposed to the vagaries of external markets. Thus their trade is likely to be particularly vulnerable to a global downturn such as the current one.

This study tries to shed some light on the actual and possible effects of the GFC on trade in LDCs, specifically focusing on the 32 states that make up the World Trade Organization's LDC Group.<sup>4</sup> The analysis is particularly important for sub-Saharan Africa as 25 of these 32 countries are from the region, representing more than half of the countries in sub-Saharan Africa. Moreover even non-LDCs sub-Saharan African economies share many of the characteristics of LDCs in terms of trade specialisation (commodities and unskilled manufacturing) and factor endowments, making the analysis potentially relevant for the entire region. Given the dependence of many of these countries on trade, a large part of the effect on them of the downturn will have to do with the way trade prospects are affected by the GFC. Identifying the countries and the sectors which are more likely to suffer the adverse trade-related consequences of the crisis is also useful in designing the possible policy responses.

The study is divided into six sections. Section 2 describes how the trade-related effects of the GFC may play out; Section 3 considers specifically the possible trade implications in relation to the characteristics of LDCs; Section 4 analyses the effects of the crisis on trade in these countries based on sectoral and geographic data and speculates on the extent to which the trade effects may affect economic growth and poverty; Section 5 presents some policy implications of the analysis and Section 6 concludes.

## 2. How the effects of the GFC play out via trade

In order to assess the implications of the current crisis for LDC trade it is important to understand in what way developing countries' trade may be affected by the crisis. An equally important starting point is to examine the characteristics of LDCs and in what way these determine the extent to which the GFC displays its effects via the trade channel. This section and the next one address these issues and derive the expected trade implications of the crisis on LDCs.

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<sup>4</sup> This a subset of LDCs as classified by UNCTAD (2009). This list of LDC WTO members includes: Angola, Bangladesh, Benin, Burkina Faso, Burundi, Cambodia, Central African Republic (CAR), Chad, Congo Democratic Republic (DRC), Djibouti, Gambia, Guinea, Guinea-Bissau, Haiti, Lesotho, Madagascar, Malawi, Maldives, Mali, Mauritania, Mozambique, Myanmar, Nepal, Niger, Rwanda, Senegal, Sierra Leone, Solomon Islands, Tanzania, Togo, Uganda, Zambia. In the remainder of the section, we use 'LDCs' to refer to this group of countries.

Trade-related effects of any financial and economic crises mainly affect countries' exports, although there are also effects on imports. In general these are adversely affected by two sets of factors:

- ◆ first, lower demand for goods and services (affecting exports for current use) due to decreasing income and worsening expectations (affecting capital goods and those where inventory changes can be large);
- ◆ second, rising protectionism: protectionism in a country's markets will hurt its exports; protection in the country itself may reduce imports, and therefore increase the costs of its exports, reducing competitiveness.

## 2.1. Lower demand for imports

Developing countries – and LDCs in particular – usually depend on the export of a few goods and services for the bulk of their export revenue. The income elasticity of goods and services' demand in the importing country is therefore an essential element in how an economic crisis affects their export revenue.<sup>5</sup>

For some products, stock levels are a function of expected production or investment; for these, changes in expected demand can have a larger effect than that given by their income elasticity. *Fuel and mining products* are highly responsive to global gross domestic product (GDP) changes. A lower utilisation of production capacities translates directly into reduced demand for these products, both for current use and for stocks. Since the production of fuel and mining products is fixed in the short run, supply cannot adjust, so prices continue to fall.

Developing countries' *manufactured goods*, such as clothing or electronics, show an income elasticity of demand greater than 1, i.e. a decline in income in the export market will lead to a more than proportionate decline in demand for manufactured goods. Several South East Asian countries depend on the export of simple manufactures for the bulk of their export revenue. The concentration on an outward-oriented industrialisation strategy based on simple manufactured exports carries a similar risk of fluctuating and deteriorating terms of trade to the export of primary products because these are also low income elasticity necessities and because there are many developing countries with the potential to produce labour-intensive high-quality products. Consequently, global competition for simple manufactured goods is very high, exerting a downward influence on prices and terms of trade. An economic crisis affects developing country manufactured exports not only because of the high income elasticity of demand for manufactured products but also because of their high dependency on imported inputs. The sourcing of inputs for manufactured exports might be severely constrained by depreciated currencies and restrictive trade finance conditions, as experienced by South East Asian exporters of computer and electronic equipment during the 1997 crisis (Ernst, 1999).

*Services exports* are usually income elastic – particularly in the case of tourism, which is the major export for several developing countries. However according to United States (US) import data services trade appears to be more resilient than merchandise trade in this current crisis, at least up to February 2009, i.e. services imports have fallen by less than merchandise imports (Borchert and Mattoo, 2009). While tourism and transport services imports (which are linked to goods' trade) have dropped by a proportion similar to merchandise imports,

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<sup>5</sup> The following discussion on income elasticities of demand for various merchandise goods is mainly taken from Meyn and Kennan (2009).

other services imports, and in particular business services, had seen little change in the months up to March 2009. This is probably due to a number of factors, including the cost effectiveness of outsourcing these types of service in times of crisis (e.g. information technology enabled services).

*Agriculture products* are generally fairly income inelastic (Engel's law); the more the good satisfies primary needs, the lower its income elasticity of demand. This applies to food products, including beverages.

Many traditional agricultural exporters have diversified into non-traditional agricultural exports, such as exotic fruits and fresh vegetables, which are generally perceived to be less affected by volatility in the terms of trade and to reap higher export revenues (AfDB, 2004). Similarly, traditional food items which have been differentiated through marketing or production processes, such as 'fair trade coffee' or 'organic cocoa', are less affected by volatile commodity prices. However, as the income elasticity for these 'luxury' agricultural items is higher than for basic crops, they are likely to be substituted by domestic goods or non-differentiated, commodity, versions of the product in times of crisis. The deeper the crisis, the more likely it is that traditional agricultural products will also be affected by decreasing demand. The Asian crisis resulted in reduced demand for coffee, palm oil, rice, sugar, rubber, cocoa and tea (Barichello, 1999). As for fuel and mining products, developing countries' possible supply response for agricultural products is slow.

The income elasticities affecting developing country exports depend not only on the composition of their export products but for some also on their destination. Virtually all fuel and mining exports go to unspecified world markets and are heavily dependent on changes in world GDP. For agricultural exports, however, it depends: LDCs and the African, Caribbean and Pacific (ACP) group enjoy duty- and quota-free market access to the European Union (EU), where the agricultural market is regulated by the Common Agricultural Policy. Most EU agricultural markets have intervention policies to stabilise supply and products have price levels that are considerably above those on the world market, which makes the EU an attractive export destination for LDC and ACP agro-exports. Preferential market access (albeit less good than for LDCs/ACP) is also granted to a range of countries from Latin America and Eastern Europe under the special incentive arrangement for sustainable development and good governance in the EU's Generalised System of Preferences (GSP+), as well as to developing countries with which the EU has entered into free trade agreements (e.g. South Africa, Chile, Mexico, North African and Middle East countries).

UNCTAD (2009) currently estimates that world merchandise trade will fall by between 6 and 8% in 2009. Exports from developing countries and countries with economies in transition could potentially decline, in 2009, by in the range of 7–9% in volume.

## **2.2. Incipient and murky protectionism**

The other potential cause for trade decline is protectionism. There have been only a few signs of outright protectionism (Chauffour and Malouche, 2009), mainly in developing and transition countries (e.g. Ecuador, Colombia, Russia). This pattern may signal the effectiveness of the multilateral system of trade rules. However, governments, especially in high-income countries, have implemented trade distorting stimulus packages targeted at troubled export industries or competing import industries. Such subsidies have little direct impact on LDCs' exports as they operate mainly in capital-intensive manufacturing and services industries (e.g. airline, construction, steel, semi-conductors, automobile), where

LDCs do not tend to compete. A number of countries have passed non-tariff measures, such as Argentina's imposition of non-automatic licensing requirements on a number of manufactured goods and Indonesia's requirement that imports of five categories of goods be permitted through only five ports and airports (Newfarmer and Gamberoni, 2009). Incipient signs of protectionist tendencies are also confirmed by an increase in the number of antidumping cases in 2008, which occurred especially in the second semester after a period of slowdown.

However these forms of protectionism mainly apply to manufactured goods, and thus do not involve most LDCs' exports. Possibly a more worrying type of protectionism as far as LDCs are concerned is labour protectionism. This is taking a rather murky form though nationalistic sentiments among the public and a higher degree of enforcement of the existing rules restricting immigration (Cali, 2009). Its effects on migration from developing countries including LDCs towards industrialised economies (and thus on the exports of services via labour mobility) would need to be closely monitored.

### **3. The possible trade implications for LDCs**

In order to see how these trade channels may affect LDCs let us briefly describe the characteristics of their international trade. The small market size and the high transport costs that characterise many LDCs tend to put them at a relative disadvantage in international trade.<sup>6</sup> Small domestic markets mean that most of the firms are small and medium enterprises with limited opportunities for reaping the benefits of economies of scale and investing in research and development. Also, most LDCs lack skilled labour or adequate human capital, which limits access to external capital and constrains industrial development. All these factors contribute to high unit production costs for firms in these countries. The high production costs are compounded by high transportation costs due to poor transport infrastructure networks and the fact that many LDCs are landlocked. As a result, LDCs tend to have a less diversified production structure, with most exports concentrated in a few sectors, and a large number of products and services acquired from abroad. For most of these countries the combined share of the first and second most valuable export products (often commodity) is over 50% of total exports of goods and services.

The reliance on imports for a large part of the tradable sector makes it particularly difficult for LDCs to adapt to falls in exports, and therefore of external revenue.

#### **3.1. Types of exposure to trade shocks**

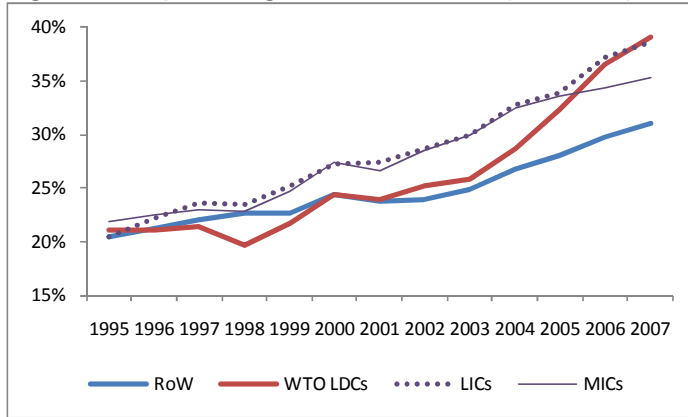
Figure 1 shows that the dependence of LDCs on foreign markets has increased relative to the rest of the world. This dependence (measured as share of exports over GDP) is now larger than that of the rest of the world as well as of middle income countries and is in line with low income countries (many of which are actually part of the LDC group).

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<sup>6</sup> According to the World Bank "Doing Business Indicators", seven of the ten countries with the highest costs to process exports in the world are LDCs (and five of them are on the WTO LDCs list).



**Figure 1. Exports of goods and services (% of GDP)**

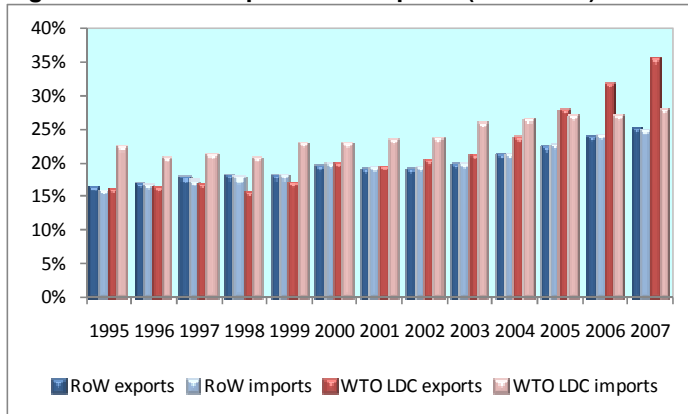


Note: 'RoW' = all countries except WTO LDCs (i.e. includes LICs and MICs).  
 Source: Derived from data obtained from World Development Indicators online.

### 3.2. Trade in goods

As can be seen from Figure 2, almost all the exports of LDCs are in goods (which accounted for over 35% of GDP in 2007 vs 39% for total exports of goods and services); the same is true for imports. Pushed by rising commodity prices LDCs' exports have increased more than imports in the last few years, turning LDCs into net goods exporters in 2005 and increasing the surplus since then. However this steep upward trend hides important variations across countries within the group. While exports by certain countries – especially commodity exporters such as Angola, Uganda and Zambia and garment exporters as Cambodia and Madagascar – have grown rapidly, others, such as those by Djibouti and Togo, have experienced a much slower growth in the past few years.

**Figure 2. Goods exports and imports (% of GDP)**



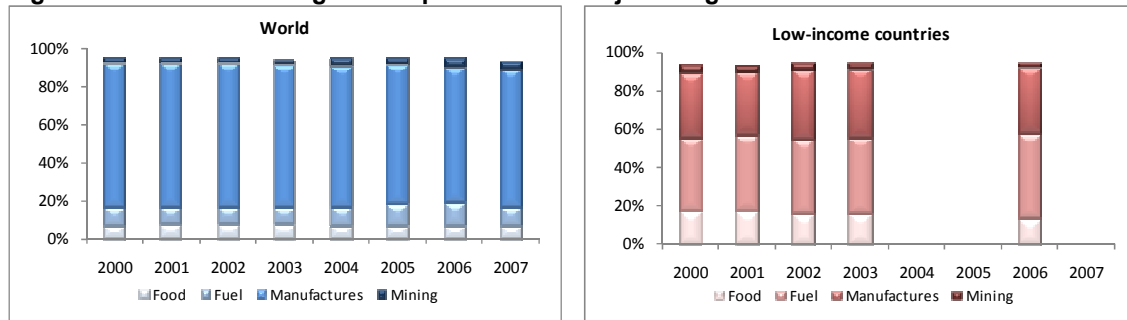
Source: Derived from data obtain from World Development Indicators online.

Unlike for the world as a whole, manufactures are not the major goods exports for LDCs (Figure 3).<sup>7</sup> Due to their factor endowments, LDCs' exports are relatively concentrated in fuels (almost 50%), followed by mining products, then food. Exceptions to this structure do however exist, such as in the case of Lesotho and Madagascar in Africa, whose main exports are textiles, and Bangladesh and Cambodia in the garment sector. These cases came about as a consequence of a combination of trade preferences (e.g. the US African Growth and

<sup>7</sup> Note that Figure 3 plots low income countries (LICs) rather than LDCs due to lack data for the main LDC fuel exporters, Angola, Chad, DRC and Mauritania.

Opportunity Act (AGOA) in the case of Lesotho, and the EU GSP for Bangladesh), industrial policies and factor endowments (these countries are relatively abundant in unskilled labour).

**Figure 3. Distribution of goods exports across major categories**



Note: LICs include 43 countries in the World Development Indicators aggregate, including 27 of the 32 WTO LDCs (i.e. all except Angola, Djibouti, Lesotho, Maldives and Solomons).

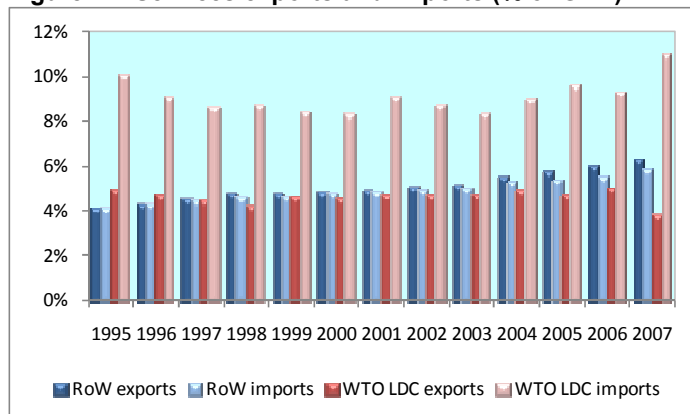
Source: Derived from data obtain from World Development Indicators online.

While preferences have been instrumental in developing important export industries in some of these countries, questions remain on the extent to which these industries will be able to compete once the preferences start to be eroded. Whether the GFC may influence the modalities of the phasing out process remains to be seen.

### 3.3. Trade in services

Services as measured in trade data still account for a minimal fraction of exports in LDCs (Figure 4), except for a few exceptions such as Maldives, Gambia and Tanzania which are mainly tourism exporters. LDCs are net importers of services and the deficit roughly offsets the overall surplus in the goods' balance (Figure 4). Services exports are under-represented in the economy relative to the rest of the world as the LDC economies tend to be unsophisticated and lack skilled labour which is often a key input for such exports. However these data do not capture services export via the temporary movement of labour (mode 4 exports), which is likely to be an important services export for a number of LDCs.

**Figure 4. Services exports and imports (% of GDP)**

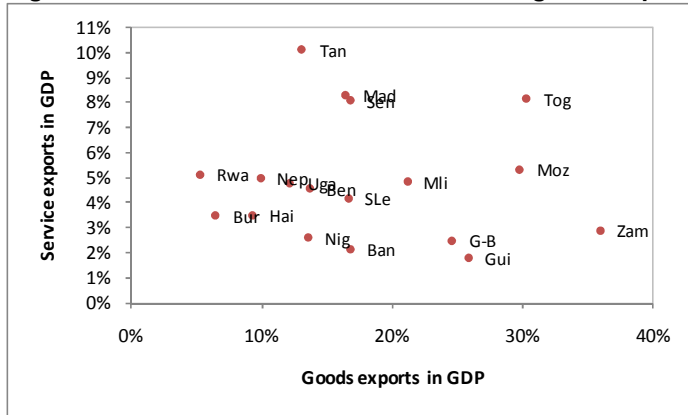


Source: Derived from data obtained from World Development Indicators online.

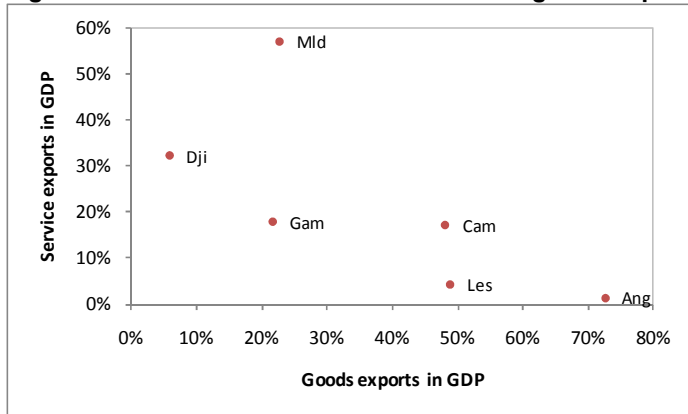
Interestingly, there seems to be a trade-off between services and goods export dependence. Figures 5a and 5b elucidate it: the share of services exports in GDP is negatively correlated to that of goods exports in GDP, except for Togo (which has high shares in both). This suggests that LDCs (or small countries?) tend to specialise in one macro tradable sector, and in some

cases the terms of trade consequences of the specialisation diverts scarce resources away from the other sector. For example, economies like Angola and Zambia have developed large commodities exports (oil and copper), which dominate the allocation of resources in the tradable sectors. This need not be the case for a large economy, which can be competitive in both goods and services at the international level. This pattern of relative specialisation holds across the different regions where LDCs belong.

**Figure 5a. A trade-off between services and goods exports in LDCs?**



**Figure 5b. A trade-off between services and goods exports in LDCs, influential observations**



Source: Derived from data obtained from World Development Indicators online.

Tourism represents the most important part of services trade in a number of LDCs. In fact the few LDCs with relatively high shares of services in total exports are tourism exporters. The share of tourism in total exports in LDCs is in line with that in the rest of the world (Figure 6).

LDCs’ share has been slightly declining over the last years, probably due to the relative success in the other (merchandise) exports rather than for an increase weakness of the sector. However there is a large variation between small states in the degree of their export dependence on tourism. As shown in Table 1, tourism represents well above half of total exports for

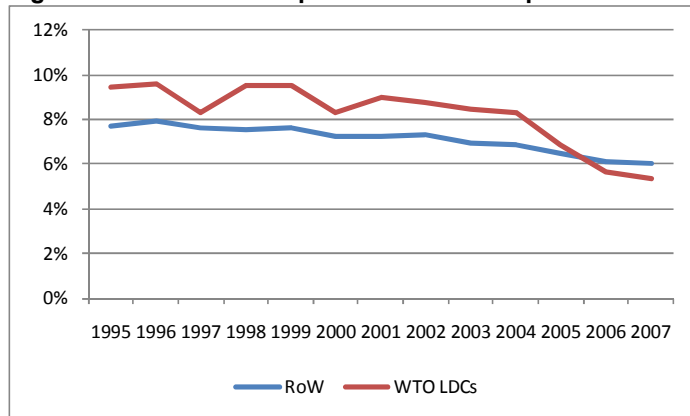
**Table 1. Most and least tourism-dependent WTO LDCs**

WTO LDC	Tourism receipts (% of total exports)
Maldives	65.5%
Gambia	31.8%
Tanzania	28.2%
Cambodia	21.8%
Uganda	21.0%
Burundi	2.3%
Myanmar	2.1%
Bangladesh	0.7%
Angola	0.5%
Guinea	0.1%

Source: World Development Indicators online. No data available for Burkina Faso, CAR, Chad, DRC, Malawi, Mauritania.

the Maldives and more than a fifth of total exports for other four LDCs. For the majority of the other countries the size of the tourism industry is relatively small, representing less than 5% of total exports for a number of them.

**Figure 6. Tourism receipts as % of total exports**

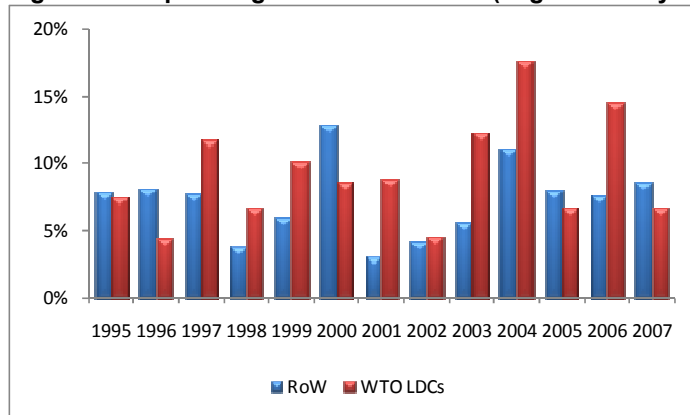


Source: Derived from data obtained from World Development Indicators online

#### 4. An empirical analysis of trade effects in LDCs

The GFC is developing at the end of a period of fairly substantial growth in exports for many LDCs, whether in commodities, textiles or non-traditional exports. Most LDCs are in sub-Saharan Africa, which has experienced a stable period of economic growth, of which an important driver has been exports. Since 2001 these often have grown more rapidly for LDCs than in the rest of the world (Figure 7). Therefore an eventual sudden halt in the growth of exports due to the GFC could represent an important setback in the progress achieved by these countries. This section assesses to what extent such a sudden halt may indeed occur to LDCs' exports.

**Figure 7. Export of goods and services (% growth on year before)**



Note: The percentage change is a simple average across countries.

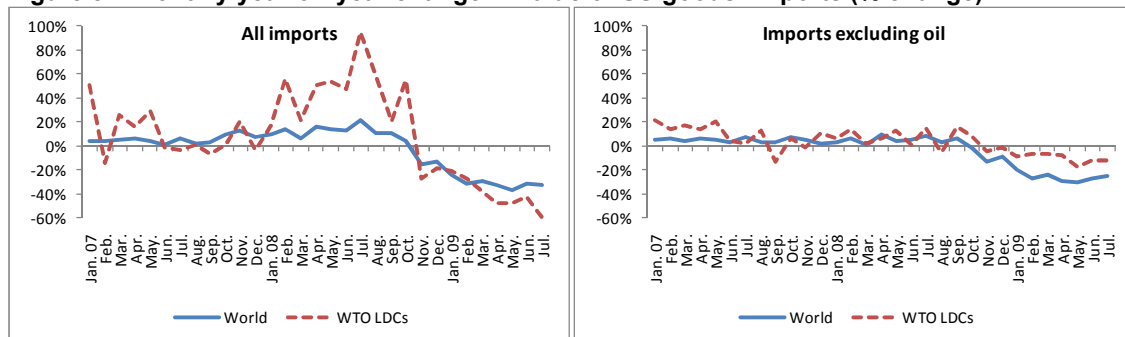
Source: Derived from data obtain from World Development Indicators online.

The different types of goods and services that countries export and their destination markets are important factors in gauging the likely impact of the GFC on their exports. The analysis of these factors allows us to infer possible effects of the crisis. In the next two sub-sections we carry out this analysis separately for goods and services.

## 4.1. Trade in goods

As mentioned above, goods represent the vast majority of exports from LDCs (and a much larger share of the total than is the case for the other countries). Thus goods are the key export sector affecting the trade-related impact of the crisis on LDCs, but there can be differences for individual LDCs. The combined effects of the channels presented above (lower demand, drying up of credit and murky forms of incipient protectionism) appear to have already caused a substantial drop in goods' exports. The left-hand panel of Figure 8 shows the fall in the value of year-on-year monthly goods' imports into the US from LDCs and from the world as a whole. As shown in the right-hand panel of the figure, the drop in imports from LDCs (starting in October 2008) is mainly explained by the fall in the price of oil. There are some early signs that the drop may have bottomed out around April although, in line with oil prices, imports from LDCs seem to have bottomed out below the rest.

**Figure 8. Monthly year-on-year change in value of US goods' imports (% change)**

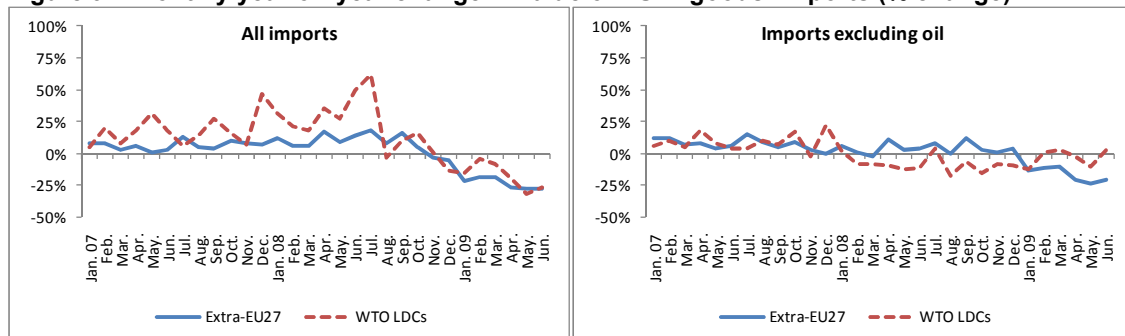


*Note:* Based on daily imports in each month to correct for the discrepancy in the number of days in February 2009 vs February 2008.

*Source:* Derived from data obtained from USITC Interactive Tariff and Trade DataWeb.

Similar, albeit slightly more moderate, drops in import values have also occurred in the EU (left-hand panel of Figure 9). LDCs' exports show a more moderate pattern of decline than the overall decline in EU imports and when EU oil imports are excluded (right-hand panel) imports from LDCs are in fact stable in 2009 (*vis-à-vis* 2008, when they fell throughout the year). This higher resilience of LDCs' exports in the EU market may be related to preferential market access, although further research is needed to unpack the reasons behind their better performance in the EU than in the US market.

**Figure 9. Monthly year-on-year change in value of EU27 goods' imports (% change)**



*Note:* Based on daily imports in each month to correct for the discrepancy in the number of days in February 2009 vs February 2008.

If we exclude oil, LDCs' merchandise exports seem to be affected by the GFC slightly less than those of other countries. But this relative trade resilience to the shock hides an important variability across individual countries. In order to identify the possible effects at a more

disaggregated level, it is useful to analyse what these countries are exporting and to where. We base the following analysis on an original methodology developed in Cali and Kennan (2009).

We identify the major export sectors for LDCs on the basis of the list of WTO LDCs as defined above. These countries tend to export a limited variety of goods relative to what they import. However if we wanted to draw a list of sectors ensuring an extensive coverage of their exports we would need a large number of sectors (using the 3-digit Standard International Trade Classification (SITC) classification). For example, taking the minimum number of sectors accounting for at least 90% of each country's exports returns a list of 130 3-digit sectors.<sup>8</sup> This number is too large to be used as a basis for the analysis, therefore we obtain a more manageable list of the main export sectors by compromising on the share of total exports of LDCs covered. We identify all those sectors which account for at least 75% of each LDC's total exports. These criteria return a list of 73 different sectors (and 164 country/sector combinations), which is reported in Annex Table A1. These sector/country pairs account for 86% of the total value of exports of WTO LDCs. In particular they account for over three-quarters of merchandise exports in all countries but Senegal where they account for 75% exactly. Thus this seems to be a representative enough sample of exports to draw inferences on LDCs' exports as a whole.

In Table 2 we divide these 3-digit export categories according to their respective 2-digit sectors to have a snapshot of the main LDCs exports.

**Table 2. Broad composition of the most important WTO LDC exports (SITC 2-digit codes)**

SITC Rev. 3 2-digit code	Description	No. of important 3-digit codes identified <sup>a</sup>	Value (\$ mn) <sup>b</sup>
<b>Total</b>		<b>73</b>	<b>78,407</b>
<b>0 - Food and live animals</b>		<b>16</b>	<b>3,765</b>
00	Live animals other than animals of division 03	1	190
03	Fish (not marine mammals), crustaceans, molluscs and aquatic invertebrates, and preparations thereof	4	1,617
04	Cereals and cereal preparations	2	49
05	Vegetables and fruit	2	779
06	Sugars, sugar preparations and honey	1	58
07	Coffee, tea, cocoa, spices, and manufactures thereof	4	1,024
08	Feeding stuff for animals (not including unmilled cereals)	1	12
09	Miscellaneous edible products and preparations	1	36
<b>1 - Beverages and tobacco</b>		<b>4</b>	<b>1,072</b>
11	Beverages	2	36
12	Tobacco and tobacco manufactures	2	1,036
<b>2 - Crude materials, inedible, except fuels</b>		<b>16</b>	<b>5,214</b>
22	Oil-seeds and oleaginous fruits	1	48
24	Cork and wood	2	1,003
26	Textile fibres (other than wool tops and other combed wool) and their wastes (not manufactured into yarn or fabric)	2	626
27	Crude fertilizers, other than those of division 56, and crude minerals (excluding coal, petroleum and precious stones)	3	82
28	Metalliferous ores and metal scrap	7	3,373

<sup>8</sup> For 25 of the 32 WTO LDCs we use the most recent data on exports reported by the countries themselves to the UN's Comtrade database (which are for 2008 in the majority of cases). For the remaining seven countries (Angola, Chad, DRC, Djibouti, Haiti, Myanmar and Sierra Leone) mirror data on 159 reporting countries' imports in 2007 have been used. This is because these countries have not reported their trade in any year this century or, in the case of Sierra Leone, because the own data reported are for 2002 only and are highly suspect.

SITC Rev. 3 2-digit code	Description	No. of important 3-digit codes identified <sup>a</sup>	Value (\$ mn) <sup>b</sup>
29	Crude animal and vegetable materials, n.e.s.	1	81
<b>3 - Mineral fuels, lubricants and related materials</b>		<b>4</b>	<b>44,551</b>
33	Petroleum, petroleum products and related materials	2	42,257
34	Gas, natural and manufactured	1	2,068
35	Electric current	1	226
<b>4 - Animal and vegetable oils, fats and waxes</b>		<b>3</b>	<b>100</b>
42	Fixed vegetable fats and oils, crude, refined or fractionated	2	23
43	Animal or vegetable fats and oils, processed; waxes of animal or vegetable origin; inedible mixtures or preparations of animal or vegetable fats or oils, n.e.s.	1	77
<b>5 - Chemicals and related products, n.e.s.</b>		<b>4</b>	<b>360</b>
52	Inorganic chemicals	1	221
55	Essential oils and resinoids and perfume materials; toilet, polishing and cleansing preparations	2	97
56	Fertilizers (other than those of group 272)	1	42
<b>6 - Manufactured goods classified chiefly by material</b>		<b>14</b>	<b>6,497</b>
65	Textile yarn, fabrics, made-up articles, n.e.s., and related products	4	95
66	Non-metallic mineral manufactures, n.e.s.	2	1,187
67	Iron and steel	4	208
68	Non-ferrous metals	3	5,007
69	Manufactures of metals, n.e.s.	1	0
<b>7 - Machinery and transport equipment</b>		<b>3</b>	<b>66</b>
72	Machinery specialized for particular industries	1	24
78	Road vehicles (including air-cushion vehicles)	1	7
79	Other transport equipment	1	36
<b>8 - Miscellaneous manufactured articles</b>		<b>8</b>	<b>14,253</b>
84	Articles of apparel and clothing accessories	6	13,530
89	Miscellaneous manufactured articles, n.e.s.	2	723
<b>9 - Commodities and transactions not classified elsewhere in the SITC</b>		<b>1</b>	<b>2,528</b>
97	Gold, non-monetary (excluding gold ores and concentrates)	1	2,528
Notes:			
(a) 'Important' defined as contributing, alone or in combination with other products, to a minimum of 75% of the total value of exports of one or more of the WTO LDCs.			
(b) Value of exports by the WTO LDCs for which the codes in question are important in the most recent year for which data on exports have been reported to the UN's Comtrade database – 2008 for 14 of the countries, 2007 for 4, 2006 for 1 (Benin), 2005 for 3 (Burkina Faso, CAR, Guinea-Bissau), 2004 for 2 (Cambodia, Lesotho), 2003 for 1 (Nepal). As explained in footnote 8, 2007 mirror data have been used for 7 countries.			
Source: Annex Table A1.			

Dividing these export categories according to their respective 2-digit sectors highlights the relative importance of **oil**. Following this, there are two main types of exports: metals and labour-intensive manufactured articles (mainly textiles). Oil (SITC 33) is by far the most important product in terms of value. Most of the value of oil exports (around 90%) comes from Angola's exports; it is also a significant export for Chad, DRC, Mauritania and Senegal. Other minerals, such as **precious stones**, **copper** and **aluminium** are less important in terms of value but represent important shares of total exports for various countries (e.g. copper represents two-thirds of Zambia's exports, **gold** 75% of Mali's and aluminium 50% of Guinea's exports). While oil and metals are often enclave sectors not much connected with the rest of the economy, they still represent a key source of government revenues and may be an important source of demand for the country's non tradable sector.

The other major component of commodity exports is unprocessed agricultural products, such as **coffee**, **cotton**, **fish** and **tobacco**. Although these products account for a relatively low share of the value of the exports identified (the combined food, tobacco and beverages categories account for US\$ 4.8 billion of exports while Angola's oil exports alone are US\$ 38

billion), they are an important source of exports for a number of LDCs. For example, cotton accounts for 75% of Burkina Faso's exports and tobacco for around 60% of Malawi's. When looking at the possible sectoral implications of the GFC, the analysis below will try to take into account this aspect as well.

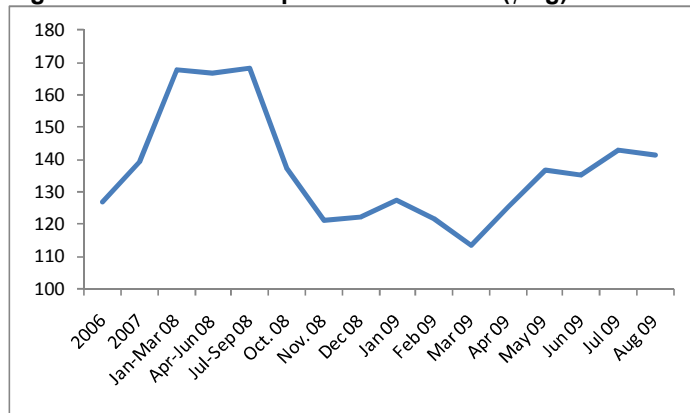
On the other hand the bulk of manufactured articles is accounted for by textiles, which are intensive in labour rather than in capital (and thus are less reliant on economies of scale).<sup>9</sup> As mentioned above a number of LDCs, especially in Asia, have been able to specialise in textile exports. Seventy-one percent of Bangladeshi exports are in **apparel** (SITC 84), but this category accounts also for two-thirds of Lesotho's and Cambodia's exports, 52% of Madagascar's and 77% of Haiti's (although the latter country's apparel exports are 5% of the level of those of Bangladesh).

In order to get a sense of how these products are being affected by the GFC, and to test whether demand for them is behaving as the discussion in Section 2 would predict, we proceed in two steps. We first check the price evolution of those products for which official data are available (from the World Bank Pink Sheets). Then we consider the evolution of their import value in the US and the EU.

Of the products in the list of LDCs' exports (in Annex Table A1) for which price data are available we select a few which are representative of different categories and countries.<sup>10</sup>

The data suggest that in general agricultural products seem to be less affected by the GFC than mineral commodities. This is the case for instance for cotton and shrimps. In the former case the price fell until November 2008, since when it has bounced back almost to the pre-crisis level (Figure 10).

**Figure 10. Price developments for cotton (¢/kg)**



Source: World Bank Pink Sheets ('Cotton A Index').

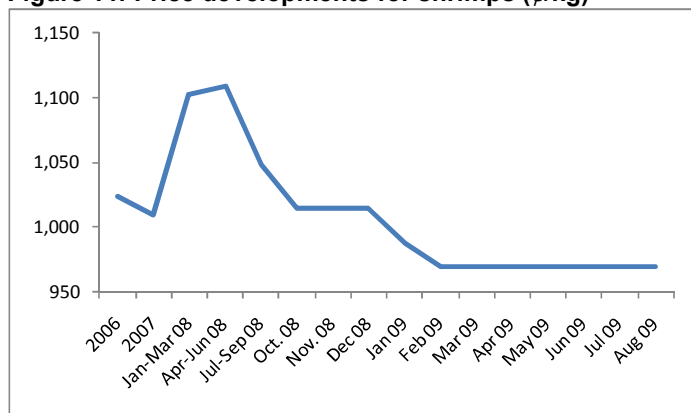
The price of shrimps (which are important for Bangladesh, the Gambia, Madagascar, Mozambique and Senegal) fell from the peak of April–June 2008 but not abruptly, i.e. by about 10% (Figure 11). In February the effect of the crisis seems to have bottomed out.

<sup>9</sup> Most of the Manufactured goods classified in code 6 in Table 2 is in fact commodities, such as non metallic mineral manufactures, which are in fact precious stones (mainly diamonds from DRC and Sierra Leone).

<sup>10</sup> In particular we select those 3-digit products from the list in Annex Table A1 which are important for at least three LDCs and which have data from the World Bank Pink Sheet. Note that manufactured goods price data are not available from the source consulted.



**Figure 11. Price developments for shrimps (¢/kg)**

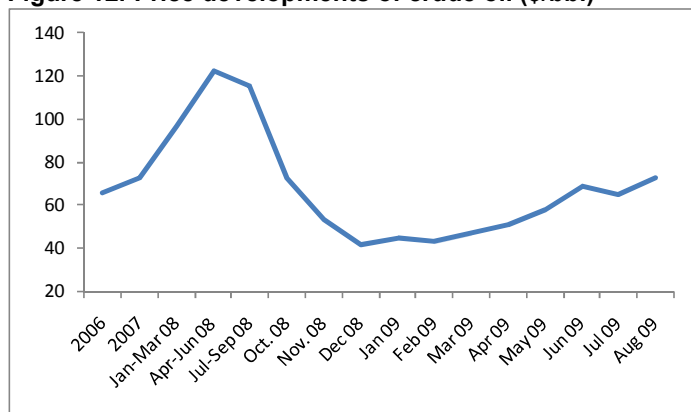


*Note:* Shrimps are included in SITC code 036, and are exported by all the countries for which this code has been identified as important.

*Source:* World Bank Pink Sheets.

Metals and minerals' prices show a general declining pattern, consistent with their use as inputs for other industries. As global production slows down, so does the demand for them. The crude oil price fell dramatically after October 2008 (Figure 12). It reached a trough at the end of last year, since when the price has risen slightly although to only half the level of last October's peak. While oil is a major export for a handful of LDCs as mentioned above, it is a key import for the majority of them.

**Figure 12. Price developments of crude oil (\$/bbl)**



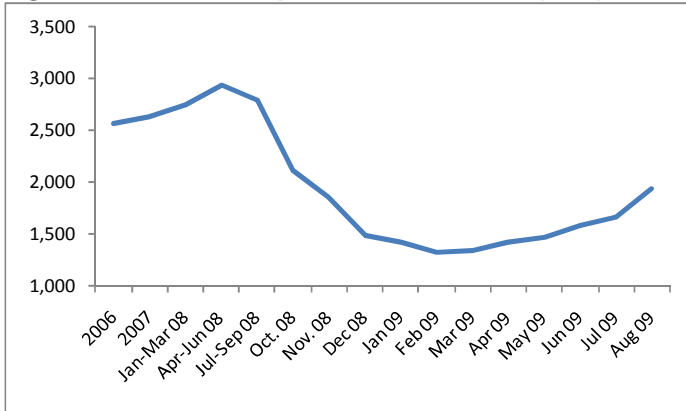
*Source:* World Bank Pink Sheets ('Crude oil, Brent').

The price of aluminium (an important export for Mozambique, Guinea and Sierra Leone) dropped substantially after the peak in April–June 2008. Its price more than halved before bouncing back to around US\$ 2000/metric ton (Figure 13).

The price of gold (among the main exports of Burundi, Guinea, Mali and Tanzania) had an opposite pattern to most other minerals and metals in that it decreased in the second half of 2008 and has bounced back since November 2008, reaching record levels at around US\$950/troy ounce in February 2009 – double the level in 2005 (Figure 14). This reverse evolution of its price relative to other minerals is mainly due to gold's function as a store of value in a period of volatilities in the returns to other forms of investment.

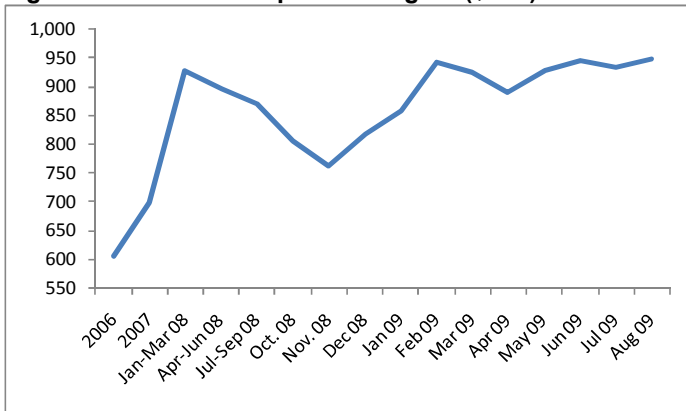
Finally the price of copper fell dramatically from the peaks of mid-2008 to the trough in December 2008 (by over 60%). It has recovered since then but in August 2009 was still much lower than the average value in the first half of 2008 (Figure 15).

**Figure 13. Price developments of aluminium (\$/mt)**



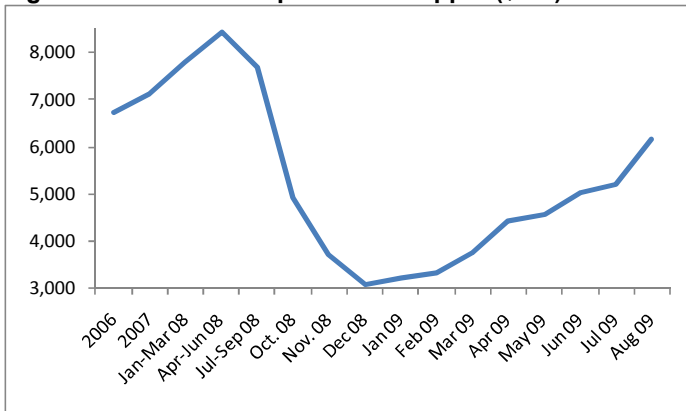
Source: World Bank Pink Sheets.

**Figure 14. Price developments of gold (\$/toz)**



Source: World Bank Pink Sheets.

**Figure 15. Price developments of copper (\$/mt)**



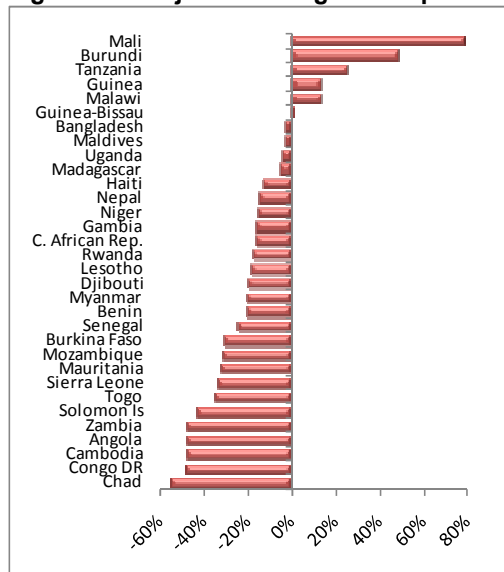
Source: World Bank Pink Sheets.

We use changes in EU and US import values to provide a rough estimate of the effects of the GFC on each of the 73 sectors identified above as important for LDCs (see the Annex for the details of these computations). As these two markets represent a substantial share of total demand in all sectors, an average of the variations across them would be a good approximation of export behaviour in the individual sectors. The results of these calculations (reported in Annex Table A3) are consistent with the price development reported above.

Fuels and minerals are the most affected categories, followed by manufactured goods, and then agriculture.<sup>11</sup> Interestingly, import values have dropped more substantially in the US than in the EU across all categories of products, suggesting that the crisis has hit demand in the US more dramatically.

We then match these changes in import values with the relative importance of each sector in each LDC to calculate an index of merchandise trade exposure based on the sectoral composition of exports (see the Annex for the details of the computation). The results are reported in Figure 16 in terms of the expected variation in merchandise exports in 2009. According to this computation merchandise exports of most LDCs should drop, although the variation is significant. Mineral and fuel exporters such as Chad, DRC, Angola and Zambia should be particularly badly affected. But also countries like Cambodia and Solomon Islands are projected to be particularly affected by the crisis: the former due to the drop in clothing imports (its main export) by the US (its main market), the latter as wood imports (its main export product) have dropped dramatically. The very high projected exposure of Cambodian exports contrasts with the relatively limited exposure projected for Bangladesh and Madagascar in spite of the fact that all these countries' exports depend on apparel. The difference is partly that Cambodian apparel is exported mainly to the US markets, whose demand has been falling quite dramatically, while the other two LDCs export mainly to the EU, whose imports of clothing have not collapsed. There are other reasons to expect a relatively small effect on Bangladeshi clothing exports, which have more to do with the positioning of its industry within the clothing sector than with the export market itself. Obviously our measurements based on sector-wide data cannot pick up these nuances (which can be important), but they are still able to provide a general picture for all LDCs.

**Figure 16. Projected changes in exports on the basis of sectoral composition**



Source: Authors' elaboration (see Annex).

On the other hand a few exports appear to have been less affected by the crisis, making the countries exporting them less exposed. That is the case of Mali, Burundi and Tanzania, whose main export, gold, has been experiencing an increase in demand (as confirmed by Figure 16), probably as a store of value in a time when return to other forms of productive

<sup>11</sup> The average drop in imports (across US and EU) for all agricultural products is 2%, for manufacturing is 11% and for minerals is 34%.

and financial investments are very uncertain. In the case of Burundi its other major export (tea) has also experienced increases in imports into the US and EU, although these are very moderate.

According to these data we can broadly divide these countries in four categories (in a roughly increasing order of expected negative effect):

1. *Gold exporters* (Mali, Burundi, Tanzania, Guinea), which are likely to have benefited from the GFC via the trade channel;
2. *Agricultural exporters* (such as Malawi, Guinea-Bissau, Maldives and Uganda), whose exports may be withstanding the crisis reasonably well;
3. *Apparel exporters* (such as Bangladesh, Madagascar, Haiti, Lesotho and Cambodia), whose exports have probably been negatively affected but are not projected to have collapsed;
4. *Fuel and mineral (except gold) exporters* (such as Chad, DRC, Angola, Zambia, Sierra Leone, Mauritania, Mozambique), whose exports are likely to have been particularly badly affected by the crisis

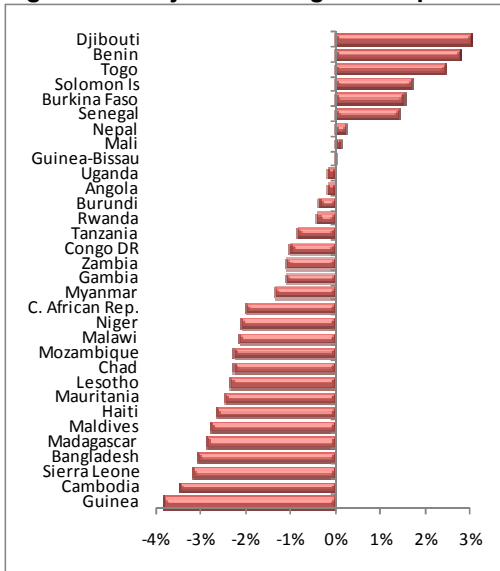
Obviously the results from these calculations need to be treated with caution as they are based on a series of assumptions that may or may not hold. First, as explained above, export data are not available in the UN's Comtrade database for all LDCs and thus we base our calculations on import data from the rest of the world, which are likely to be less precise. Another more important note of caution is that these results are based on the assumption that countries' exports in an SITC 3-digit sector have the same characteristics as the set of imports into the US and the EU in that 3-digit sector. Although the 3-digit classification is already quite fine, each sector still includes a number of sub-sectors whose export dynamics are not necessarily the same. Moreover large countries' imports in a sector may be largely accounted for by imports from large LDCs; their pattern of exports in those sectors could be different from those of smaller exporters. Keeping these limitations in mind, we believe the results are a good indication of how LDCs' exports have fared in the first months of the GFC.

Along the same lines we also compute an indicator of trade exposure based on individual LDCs' export markets and the expected performance of those markets. This is based on the idea that potential demand for a country's exports is driven by its trading partners' income as well as its types of exports (see the Annex for the details of the computation). Figure 17 presents the results of the index computation in terms of expected percentage variation in merchandise exports. Most LDCs are predicted to have a negative export growth in 2009 according to this export market based index. This follows the fact that their major importers all have negative projected rates of growth for 2009.

There are two types of less exposed countries according to this index. First, there are those whose main export markets are large emerging economies such as China, India and South Africa, which are predicted to grow substantially even in 2009 (according to IMF, 2009b). These countries are Benin (China and India), Solomon Islands (China and Korea), Mali (South Africa and India), Nepal (India) and Guinea-Bissau (India and Singapore). The second class of less exposed LDC exporter is composed of those countries which export mainly at the regional level. This is especially the case for West African countries, which are forecasted to experience positive (albeit moderate) growth rates in 2009. These countries include Djibouti (Ethiopia), Togo and Burkina Faso (West Africa) and Senegal (Mali).

The rest of the countries tend to export mainly to developed countries' markets which are projected to experience significantly negative growth rates in 2009.

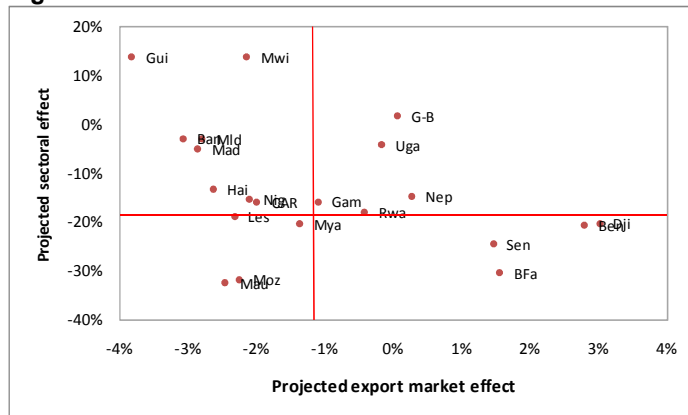
**Figure 17. Projected changes in exports on the basis of export market composition**



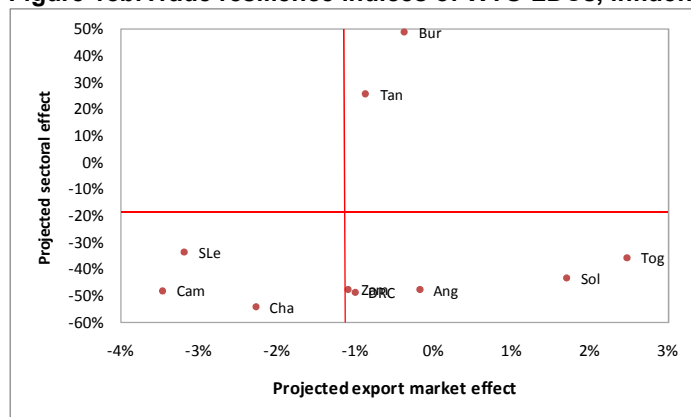
Source: Authors' elaboration (Annex).

It is useful to plot these trade exposure indicators in a two-dimensional space to have a more complete picture of how exports are expected to fare in the individual LDCs. We do this in Figures 18a and b. We separate the LDCs into two groups, as some show a number of influential observations which would shrink the differences among other countries if plotted in the same figure. The figures are divided into quadrants by two lines drawn at the median value of each index. Therefore the upper-right quadrant includes countries whose exports are likely to be most exposed, while the opposite is the case for the lower-left quadrant. Countries in the lower-right quadrant are exporting to markets which are expected to be relatively unaffected by the crisis, but their exports are concentrated in sectors that have been relatively highly affected. The opposite situation is represented by the upper-left quadrant. Note that only Guinea-Bissau is projected to have non-negative export growth according to both estimates. On the other most LDCs are projected to experience drops according to both indices.

**Figure 18a. Trade resilience indices of WTO LDCs**



**Figure 18b. Trade resilience indices of WTO LDCs, influential observations**



Source: Authors' elaboration (see main text).

## 4.2. Trade in services

Unlike trade in goods there is little recent systematic data on trade in services that can be used to predict the impact of the GFC on services exports for LDCs. Moreover data on services trade tend to be less reliable and complete than those on trade in goods, given the intangible nature of the trade. For example existing data usually cover only trade in services delivered through mode 1 (cross-border delivery) and mode 2 (services consumed abroad), but not through mode 3 (services delivered via commercial presence) and 4 (temporary movement of persons).<sup>12</sup>

As discussed in Section 3, Borchert and Mattoo (2009) provide some early evidence of the performance of services trade relative to goods' trade. This is shown in Figure 19a, which shows that the drop in US services imports growth in the first quarter of 2009 was around a quarter that of goods' imports. However a wide variation of patterns emerges within US services categories. Transport and travel appear to be more affected than other private services trade (Figure 19b), and within the latter sector financial services are more affected than the other services (Figure 19c). Using this distinction between services sectors we can draw some inferences on the possible effect of the crisis on services exports by LDCs.

We classify LDCs according to their exposure to more affected exports in total services exports (i.e. their shares of transport, tourism and financial services). This exercise is necessarily considerably more imprecise than that carried out for goods' exports for three main reasons.

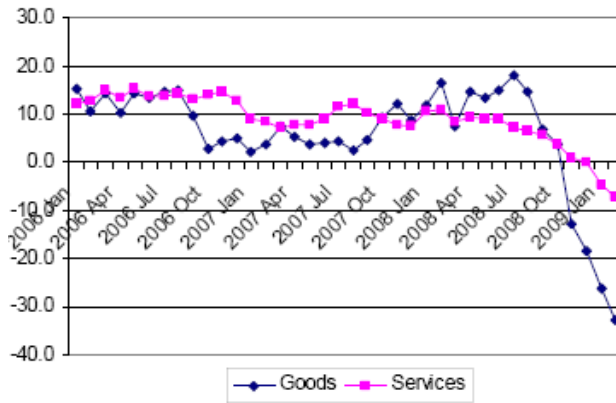
- ◆ First, services sectors represent larger categories than SITC 3-digit sectors in goods. This means that there is larger heterogeneity in the response of this sector to the crisis. For instance passenger transport services are very different to goods transport services.
- ◆ Second, the evidence of the effects of the crisis on the different services sectors is less precise than for goods, as it is based only on US data and data only up to March 2009.

Third, and related to the previous point, the share of services exports captured by the data is likely to be more limited than that in goods, as only modes 1 and 2 are recorded. In general

<sup>12</sup> Part of mode 4 trade tend to be captured through workers' remittance data in the BoP statistics, while mode 3 trade goes usually unrecorded as it involves domestic transactions by foreign entities.

the recording of services trade, especially in developing countries, is subject to a large margin of error.

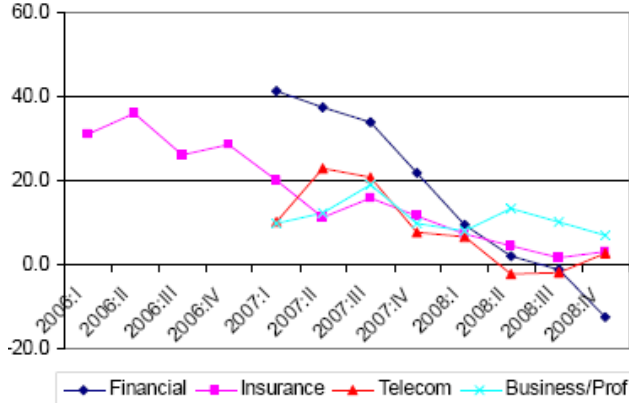
**Figure 19a. US imports of goods and services, year-on-year growth**



**Figure 19b. Sub-categories of services**



**Figure 19c. Sub-categories of 'other private services'**

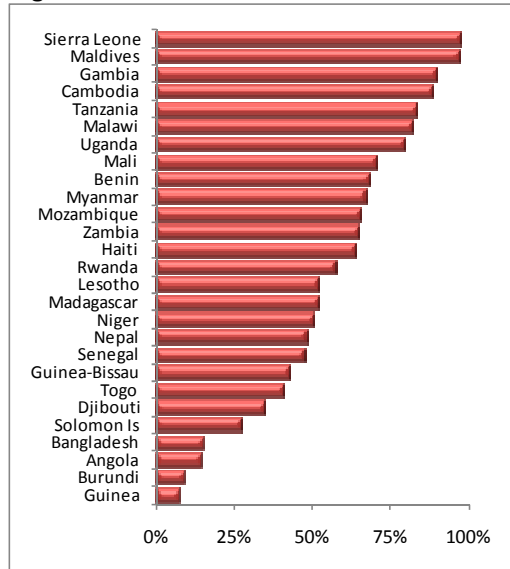


Source: Borchert and Mattoo (2009).

Notwithstanding these limitations, the share of more affected services exports can provide a useful indication of relative exposure of countries to effects from services exports.

Figure 20 provides the list of LDCs ranked in decreasing order of this share. These sectors represent most services exports in the majority of LDCs mainly because tourism is a major component of services exports for many of them. The countries expected to be most affected by the GFC via drop in services exports are all tourism exporters, including Sierra Leone, Maldives, Gambia, Cambodia and Tanzania.

**Figure 20. Share of most affected services in total services exports**



Source: Derived from data obtained from UNCTAD *Handbook of Statistics 2008*. Data incomplete for Burkina Faso, CAR, Chad, DRC and Mauritania.

### 4.3. How do trade shocks affect the domestic economy?

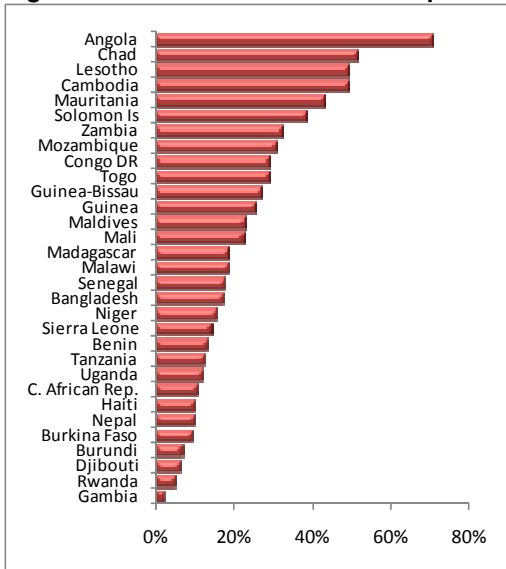
The discussion above has shown that the effects of the GFC on trade prospects in LDCs are likely to be substantial, although there are large differences across countries. The extent to which these trade effects will have an impact on GDP growth and development is a very different and much more complex question altogether. In general, other things being equal, the effects on the economy will obviously be larger the higher the dependence of a country on exports. But other characteristics matter as well, such as the share of domestic value added in total exports (i.e. how much of the value of the export is retained in the economy), the distribution of the value across factors of production, the level of employment dependent on exports (both directly and indirectly), and so on. (In addition, there will be the differences in resilience discussed in the previous section.) Although it is beyond the scope of this paper to explore these linkages in greater detail, it is worth examining the potential size of the trade channel of the crisis on the economy as a whole. We do so by using the shares of goods' exports and that more affected services (as defined above) in GDP. Figure 21 presents the former share, and Figure 22 the latter.

We then use these shares and the trade effects of the crisis computed above to estimate the possible direct impact of the trade channel of the crisis on GDP. In order to do this we take the average of the two merchandise trade exposure indices above and multiply it by the share of merchandise exports in GDP (from Figure 21). We then add the share of 'more affected' services in GDP (from Figure 22) multiplied by -0.15. The latter is based on the assumption that these services would shrink by 15% on average (while the other services would stay unchanged). The multiplicity of strong assumptions underlying this computation makes the results subject to large margins of errors and requires a substantial note of caution in



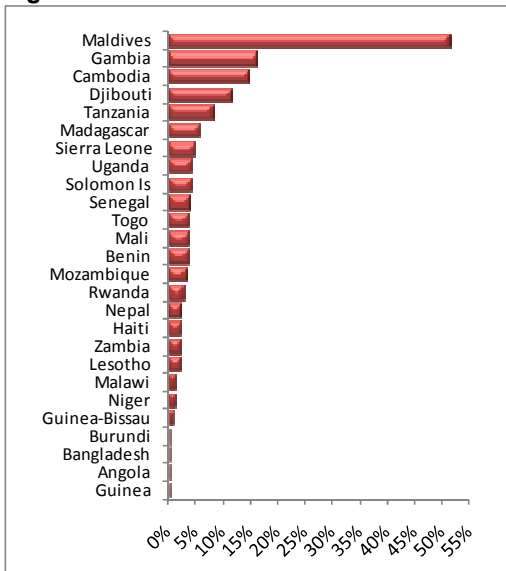
interpreting them. Figure 23 presents the results (as a share of GDP), which also represent a sort of summary of the various estimations in the study.<sup>13</sup>

**Figure 21. Share of merchandise exports in GDP**



Source: Derived from data obtained from World Development Indicators. Data incomplete for Myanmar.

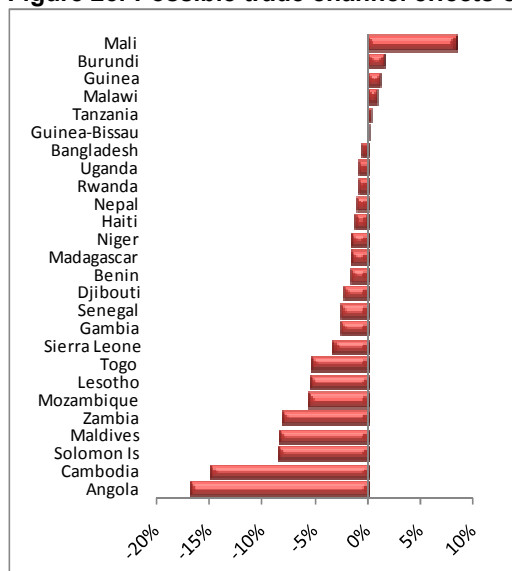
**Figure 22. Share of more affected services exports in GDP**



Source: Derived from data obtained from World Development Indicators online and UNCTAD *Handbook of Statistics 2008*. Data incomplete for Burkina Faso, CAR, Chad, DRC, Mauritania and Myanmar.

<sup>13</sup> Note that not all LDCs have enough data for the calculations to be performed, thus Figure 23 shows only 25 of the 32 countries. For those LDCs which are missing an idea of the likely effect of the GFC via trade can be provided by the merchandise trade resilience indices computed above.

**Figure 23. Possible trade channel effects of the crisis in GDP (% of GDP)**



Source: Authors' elaboration (see main text). Insufficient data for Burkina Faso, CAR, Chad, DRC, Mauritania and Myanmar.

Most LDCs are predicted to have fairly sizable negative effects from the drop in exports induced by the GFC. The only countries which are expected to experience positive growth in exports are Mali, Burundi, Guinea and Malawi due to their dependence on gold or basic agricultural exports such as tobacco, combined with a low reliance on negatively affected export markets and services exports. At the other end of the spectrum countries heavily reliant on minerals and fuels, like Angola, Zambia and Mozambique, as well as countries relying on tourism and developed countries markets such as Cambodia and Maldives are likely to be the most negatively affected ones. We have already noted that the dependence of Solomon Islands on wood exports makes the country's exports particularly vulnerable.

A more indirect trade effect of the crisis has to do with falling government revenues. In developing countries (and LDCs are no exception) a large share of these tend to come from trade-related taxes. Falling export and import revenues may exert pressure on government revenue (IMF, 2009a). This may further reduce the fiscal space that governments in developing countries have to develop counter-cyclical policies, including the expansion of social spending to protect the more vulnerable categories of people.

The trade decline may also have effects on poverty. The immediate impact on the poor depends mainly on the employment effects and direct linkages of export-oriented industries to domestic industries. In addition, there can be negative spill-overs on the poor via reduced government revenues (as argued above). In countries that export agricultural commodities, falling commodity prices would cut into rural employment and incomes, thereby increasing rural poverty. The urban poor, however, may benefit as food and energy prices decrease (IMF, 2009a).

#### **4.4. The actual effects of the GFC via trade**

So far we have looked at the effects of the crisis via the trade channel through projections based on *actual* sectoral data. These projections aim to provide a complete picture of the trade channel even for those LDCs for which the EU and the US represent relatively small markets. On the other hand it is important to examine the actual trade effects as recorded via data on exports for the last few months. We do so by using relatively up-to-date merchandise

import data for the EU and the US from Eurostat's COMEXT database and USITC's Interactive Tariff and Trade DataWeb respectively.

Table 3 reports year-on-year changes in merchandise imports from each LDC for the latest 3, 6 and 12 month periods available. For example the first column reports the percentage change in imports for the period April-June 2009 over the same period in 2008. The reason for focusing on longer periods than one month has to do with the high variability of monthly imports from LDCs. This is related to the fact that the value of EU and US imports is small in absolute terms for most LDCs. Therefore monthly data are prone to large variations some of which may not be dependent on the actual effects of the crisis. Using longer periods helps smooth this variation, better isolating the effects of the crisis. However even longer periods do not cancel some noise in the data completely, which is another reason why the projected effects computed above, which do not suffer from this problem, are an important component of the analysis.

LDCs are ordered in the table by decreasing importance of the EU and US as export markets (measured by the share that these markets represent in total exports for each LDC). This is a key variable in determining how representative these effects are of the total effect on exports for each country. Obviously the results in the table are less reliable for a country where the combined share of the EU and US markets accounts only for 2% of total exports (as in the case of Guinea-Bissau) than for one where the share is 88% (as in Sierra Leone).

A few interesting patterns emerge from the table. First the drop in LDCs exports to the EU and the US has been fairly dramatic, especially since January 2009 (and up to July 2009). As argued above much of this is due to the effect of the fall in oil prices, but the vast majority of LDCs (including non-oil exporters) have seen the value of their exports to the EU and US fall significantly. Seventy-eight percent of all LDCs (25 out of 32) experienced a drop in export values in the period April-June 2009 (over the corresponding period in 2008), and for 72% of the LDCs this drop was worse than -10%.<sup>14</sup> These percentages are similar for the 6-month period but less severe for the 12-month period (62% and 50% respectively), confirming that the negative trade effects of the crisis on LDCs have intensified in 2009. In addition, as mentioned above, US imports from LDCs appear to have been hit more severely than EU imports.

In line with the predictions of our projected index, mineral and fuel exporters are the worst hit by the crisis, with imports from DRC, Mauritania, Angola, Zambia, Chad and Mozambique among the hardest hit.

Textile exporters are suffering as well but less than mineral exporters, again consistently with our sectoral predictions. In particular, Lesotho, Madagascar and Cambodia suffer more than Bangladesh, which withstands the crisis relatively well, as predicted by our sectoral trade resilience index, and confirmed by the evidence in te Velde (2009). On the other hand Haitian exports have grown substantially in the period January-June 2009, contrary to the predictions of our trade resilience index which forecasted negative growth in Haitian exports due to its dependence on textiles. The positive growth is probably explained by the poor performance of Haitian exports in 2008, when exports (and production in general) declined in the country due to the civil and political unrest. Exports to the US and the EU had declined in 2008 by 8% and 7% respectively over the previous year. It is likely that the growth in exports of 2009

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<sup>14</sup> These figures are similar if we consider only those LDCs for which the EU and the US represent a relatively high share of their exports.

is mainly a reflection of a normalisation of the economy (including exports) which is bouncing back to pre-2008 levels.

**Table 3. Year-on-year change (%) in value of EU and US imports from WTO LDCs in past 3, 6 and 12 months compared with same months in 2007/8**

WTO LDC	EU imports			US imports			EU+US imports <sup>a</sup>			Share of EU+US in total exports
	3 mths (April-June)	6 mths (Jan.-June)	12 mths (July-June)	3 mths (May-July)	6 mths (Feb.-July)	12 mths (Aug.-July)	3 mths (April-June)	6 mths (Jan.-June)	12 mths (July-June)	
<b>Total</b>	<b>-26</b>	<b>-19</b>	<b>-5</b>	<b>-51</b>	<b>-46</b>	<b>-22</b>	<b>-44</b>	<b>-38</b>	<b>-17</b>	<b>58%</b>
Sierra Leone	-21	-10	-18	68	-1	3	-18	-18	-18	88%
Angola	-54	-42	-11	-64	-60	-31	-63	-56	-26	87%
Haiti	-35	-37	-20	22	25	12	16	18	8	87%
Chad	100	203	206	-46	-53	-21	-41	-48	-18	86%
Madagascar	-4	-9	-4	-17	-18	-11	-16	-20	-11	82%
Bangladesh	15	17	13	-1	5	8	0	3	6	77%
Lesotho	-14	-20	17	-15	-14	-12	-18	-19	-5	72%
Cambodia	16	14	7	-25	-24	-16	-18	-17	-11	70%
DRC	-55	-58	-40	-88	-65	-66	-71	-63	-49	64%
CAR	14	12	-1	-87	-83	21	-14	-10	-6	61%
Guinea	-14	-12	-4	-20	-41	-28	-24	-25	-12	61%
Gambia	92	38	9	-96	-92	19	58	16	2	56%
Niger	-5	-15	-68	-10	20	3	-14	-10	-56	53%
Mauritania	-62	-54	-12	28	2386	4453	-67	-52	-9	49%
Malawi	83	65	30	139	135	103	70	56	32	47%
Nepal	0	2	2	-28	-36	-21	-19	-22	-12	47%
Uganda	-4	0	10	13	17	-59	-15	-12	-4	31%
Rwanda	-7	6	22	99	116	91	-1	8	27	30%
Maldives	-7	-7	12	-78	-25	32	-20	-19	5	29%
Mozambique	-31	-31	-28	-26	-35	186	-40	-40	-31	27%
Tanzania	0	7	-2	-30	0	5	-15	-5	-8	25%
Senegal	0	-15	-18	-64	-43	-56	-15	-27	-24	23%
Burundi	103	129	20	291	0	97	82	90	17	13%
Benin	-22	-61	-47	-16	-29	530	-32	-66	-29	10%
Burkina Faso	-4	-9	10	-44	10	-27	-17	-20	2	10%
Togo	54	54	52	15	-64	-63	33	27	36	10%
Myanmar	13	-10	-22	c	c	c	-2	-21	-27	9%
Solomon Is	-57	-53	-9	4	4	20	-62	-57	-14	8%
Djibouti	-14	67	148	-82	-52	-28	-46	5	63	7%
Zambia	-49	-48	-37	-94	-78	-58	-59	-56	-42	6%
Mali	-39	-37	-27	0	-26	-57	-44	-43	-37	5%
Guinea-Bissau	634	371	160	b	b	-95	519	306	118	2%

Notes:  
(a) EU import values converted to US\$ at period average rates obtained from Oanda (<http://www.oanda.com/convert/fxhistory>)  
(b) No imports in 2009.  
(c) No imports in either year.  
Sources: Derived from data obtained from Eurostat's COMEXT database and USITC Interactive Tariff and Trade DataWeb.

Agricultural exporters appear to be more resilient than textile exporters. In particular Malawi is one of the LDCs with the highest export growth, driven by tobacco.<sup>15</sup> Rwandan and Ugandan exports, which also belong in this category, show some relative resilience to the crisis. This is especially the case for Rwanda, whose exports are driven by tea, while Ugandan exports to the EU and US have fallen by around 15% in the period April–June 2009 (*vis-à-vis* the same period in 2008). This figure is worse than the small drop expected according to our index. This difference is mainly due to the fact that Uganda exports much of its agricultural produce to the East Africa region, which has been less severely hit by the crisis (as confirmed by preliminary evidence in te Velde, 2009). In this way our index

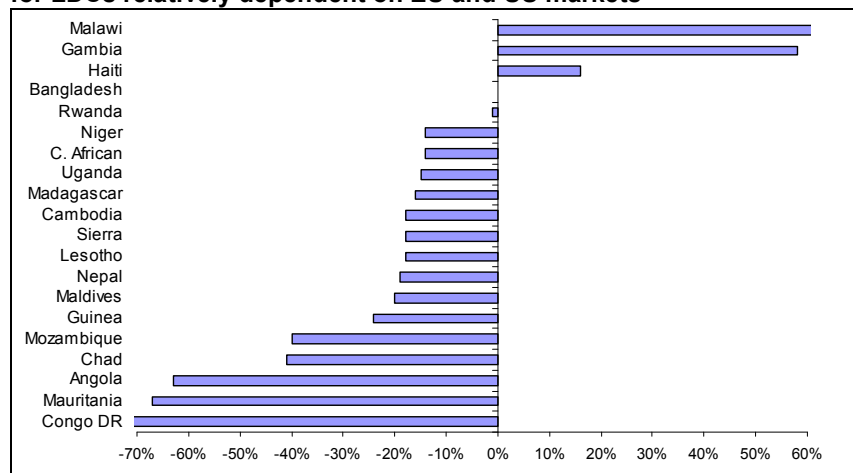
<sup>15</sup> Guinea-Bissau is in fact the LDC with the highest growth according to the table (with growth of 519% in the last three months for which data are available), but those data cover only 2% of its exports and thus may be misleading.

appears to be a better indicator of the trade resilience for Uganda than the actual data based on EU and US.

Finally, some gold exporters, such as Burundi, have benefited from the increase in the price of their main export and have seen their exports to the EU and US grow, in line with the predictions of our sectoral index. On the other hand others, such as Mali, Tanzania and Guinea, have not experienced a similar growth. The case of Mali is explained by the very low share (5%) of exports represented by the EU and US. Tanzania and Guinea export very little gold to these markets and therefore their exports to the EU and US have not benefitted (but their total exports may have done). In fact Guinea’s main export to these markets, accounting for over 70% of total exports to the EU and US, is aluminium, which has experienced a substantial drop in demand (reflected in the drop in the value of Guinea’s exports to those markets). Tanzania’s main exports to the EU and US are fish and coffee, which have experienced some reduction in demand, thus explaining the drop (albeit limited) in the country’s exports to these markets.

Figure 24 presents the changes in the value of exports to the EU and US in the period April–June 2009 (over April–June 2008) for those LDCs relatively dependent on EU and US markets (i.e. with a share higher than 25%).

**Figure 24. Percentage change in exports in the period April–June 2009 (over April–June 2008) for LDCs relatively dependent on EU and US markets**



Source. See Table 3.

In general, and as mentioned above, the actual changes in exports are much in line with those of the projected sectoral trade resilience index (which represent the relevant comparators here as they are based on EU and US sectoral data). Not surprisingly this is particularly the case for those LDCs for which the EU and the US represent an important share of the export markets. The simple correlation between the three-monthly changes in imports with the projected sectoral effects computed above is 0.33 and the Spearman index is 0.53. This indicates that if we rank LDCs according to the expected sectoral trade effects and according to the actual effects based on EU and US import data we obtain a similar ranking (i.e. 53% if the ranking is the same). These correlations are even higher when we restrict the comparison to those countries for which the EU and US represent the bulk of their exports. The simple correlation measure goes up to 0.53 and the Spearman index to 0.60 for those LDCs where

EU and US account for at least 50% of their exports; and the correlation becomes 0.80 and the Spearman index 0.84 when the share of EU and US in total exports is at least 70%.<sup>16</sup>

This similarity suggests that our predictions are a good proxy of what is actually happening in LDCs as far as merchandise exports are concerned. Apart for those LDCs for which the EU and the US are relatively small markets (where we believe that our sectoral projections are more reliable than the actual changes in imports from EU and US), the major differences between the actual data and our sectoral projections are represented by the Gambia, Haiti and Guinea. In the Gambia and Haiti exports to the EU and US have increased substantially over the past three and six months (while changes have been less relevant over the past 12 months) while our index predicted a drop in exports, and *vice versa* for Guinea. The cases of Guinea and Haiti have been already discussed above. It is more complicated to understand where the difference comes from for the Gambia. The mildly negative export prediction of our trade index is driven by the large expected drop in ferrous waste which represents around 15% of total Gambian exports. However this product does not seem to be exported to the EU (which is by far Gambia's main market), where Gambia's main exports are vegetable oils, fruit and nuts, oil seeds, fish and fresh vegetables (accounting for 76% of total exports to the EU). Clearly these exports to the EU have not suffered from the crisis according to the actual export data in Figure 25.

It is also reassuring to note that both the projections based on our index and the actual effects based on the EU and US markets are consistent with the evidence from countries reported in te Velde (2009). In particular, Bangladesh's overall export growth in 2008/09 (July–June) was 10.5%. On the other hand Cambodian exports suffered, driven by the drop in garments export value whose year-on-year growth fell to -43% by March 2009.

Similarly exports from DRC have seen a large contraction given the dependence on a handful of minerals (copper, cobalt, gold, diamonds and crude oil account for roughly 80% of total exports), whose demand has experienced a severe halt.

Uganda experienced a marked reduction in export growth in 2008 and 2009 compared with 2007, although regional trade, especially in non-traditional exports such as maize, beans and cement, helped cushion the country somewhat from the adverse effects of the crisis.

Finally, Zambia's export earnings declined substantially, by 25.8% in the first half of 2009 compared with performance in the second half of 2008. This is due to the decline in earnings for both metal and non-traditional exports.

## **5. Policy implications**

A major finding of this study is that the majority of LDCs are likely to see their exports fall fairly substantially, and for some of them the reduction may be critical. These countries would need to adopt both short-term and long-term policies to mitigate and (eventually) counteract the effects of the crisis and to increase their resilience to possible future shocks, which are not rare as this crisis has shown once again. We review these policy implications in turn. Such policies are particularly relevant for sub-Saharan Africa given that the LDCs group includes over half of the countries in the region.

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<sup>16</sup> We obtain similar results using the 6-monthly changes in imports.

## 5.1. Long-term policies

The wide variation in trade effects is related to the export composition of countries in terms of both markets and sectors. It is clearly more difficult to change the sectoral specialisation of a country than its trading partners, especially for an LDC. In this context diversifying the markets for exports is a strategy with a high return in times of crisis. However two important caveats are in order here.

First, for those countries exporting commodities, and minerals and fuel in particular, diversifying export markets is not a solution, as exports are to world markets and the export value in the short term depends on the price which is internationally set. Obviously in the medium–long run the export is also a function of supply capacity (e.g. capital invested in new oil explorations or to expand the area under coffee production). But even that is often ultimately driven by the international price. The crisis is showing once again how vulnerable to demand shocks mineral and oil markets can be. Therefore countries need to build resilience to these types of shock.<sup>17</sup> According to our analysis, exporters in these markets are the major losers among LDCs. One potential way to reduce the drop in these exports would be to increase quantities sold. However, with dwindling incomes and demand this strategy seems very difficult to implement. The advantage for LDCs is that the quantities they produce are often small relative to the international markets and thus do not influence the international price (with the partial exception of Angola’s production of oil). On the other hand, expanding quantities produced involves major investments that are difficult to make for cash-constrained economies such as LDCs, especially in times of crisis.

The most feasible option for mineral and oil exporters is probably sectoral rather than market diversification. Although booming mineral export sectors are often a problem for sectoral diversification owing to ‘Dutch-disease’ type effects, this does not need to be the case. The case of Chile is illustrative in this respect, where the copper booms has been accompanied by the development of successful non-traditional export sectors. This underscores the importance of managing the response to swings in commodity prices in a careful way, extracting resources from the mineral sector during booming times to manage less lenient times. As noted by Cali and te Velde (2007) if enough windfall revenues are channelled into the public sector, there would be the option of creating a trust fund to save for periods of adverse terms of trade and to take some pressure off the currency (along the lines of the Chilean experience). This would also have the effect of not constraining the growth of other sectors during mineral boom times. The success of granting preferential market access has been mixed, especially as falling tariffs and increasing numbers of countries with preferential access have greatly reduced the scope for preference.

Second, in the case of manufactured exports, LDCs have often been successful only via preferential schemes such as the ‘Everything but Arms’ initiative in the EU and AGOA in the US (which includes only sub-Saharan African countries). Exploiting this preferential market access to become more competitive internationally in the preference receiving sector is key to facilitating the market diversification process.

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<sup>17</sup> This is the same old recommendation which has appeared in the literature over and over again (see for instance Hewitt and Page, 2001), though it has not been implemented seriously by many developing countries.

## 5.2. Short-term policies

In the short run, LDCs are constrained in the policies they can implement to limit the adverse effects of the crisis on exports. A first possibility is to use the exchange rate policy by devaluing the domestic currency *vis-à-vis* that of the major competitors in order to improve the competitiveness of the country's exporters. However the scope of this measure is often constrained by the high import content of exports. Moreover the devaluation would also increase the price of imports and the costs of external debt.

Another possibility is to use the fiscal policy to stimulate exports by reducing (or eliminating) both explicit and implicit (e.g. via import taxes on inputs) forms of export taxes. In general all measures that could reduce the costs of trading may be particularly effective in a period of low international demand where substitution is possible and cross elasticities are high. Trade facilitation activities may help reduce these costs in the short run, and have proven to be particularly effective in decreasing the costs of exporting in developing countries, and in Africa in particular (Cali and te Velde, 2008). Infrastructure upgrading and development are possibly more effective at reducing trading costs but are more long-term measures. In some cases the latter measures could represent effective ways of implementing counter-cyclical fiscal stimulus packages in countries (see Barrell et al., 2009).

One possible implication of falling prices in commodity export sectors is that these may receive government transfers to offset part of the falling revenues (IMF, 2009a). This will happen if commodity marketing boards or state-owned export enterprises, which are common in some LDCs, decide to subsidise domestic producers by maintaining higher domestic prices than the corresponding export prices. This would obviously have negative effects on domestic consumers and would make the necessary switch out of traditional exports less likely, and thus would need to be avoided.

Finally, all the efforts of the international trade community to minimise the impacts of the crisis on international trade would be particularly beneficial for LDCs given their relatively high degree of openness and dependence on international trade. Such international policy responses could include the provision of Aid for Trade towards effective areas of intervention and the fight against any forms of trade protectionism.

## 6. Conclusions

For LDCs trade is a key transmission mechanism of the current GFC. The effects of the crisis on trade are likely to play out mainly through falling demand (due to falling incomes), increased trade protectionism, mainly in non-traditional forms and possibly drying-up of credit. The adverse effects on trade are possibly even more important for LDCs, which are heavily dependent on trade given their need to specialise in a handful of productive activities. This study has shown that LDCs' exports seem to be affected, but to varying degrees.

The export dependence of LDCs on a few sectors and markets implies that if these sectors and/or markets are adversely affected, the effects for LDCs' exports will be important. On the basis of these characteristics, we have identified the possible exposure of LDCs to adverse trade shocks.

According to our analysis we can broadly divide LDCs in four categories (in a roughly increasing order of expected negative effect):



1. Gold exporters (Mali, Burundi, Tanzania, Guinea), which are likely to even benefit from the GFC via the trade channel;
2. Agricultural exporters (such as Malawi, Guinea-Bissau, Maldives and Uganda), whose exports are likely to withstand the crisis reasonably well;
3. Textile exporters (such as Bangladesh, Madagascar, Haiti, Lesotho and Cambodia), whose exports are negatively affected but are not expected to collapse;
4. Mineral (except gold) and fuel exporters (such as Chad, DRC, Angola, Zambia, Sierra Leone, Mauritania, Mozambique), whose exports are likely to be particularly badly affected by the crisis

Similarly we identify the LDCs most likely to be affected on the basis of export markets. There are two types of resilient countries according to our analysis. First, there are those countries (Benin, Solomon Islands, Mali, Nepal and Guinea-Bissau) whose main export markets are large emerging economies such as China, India and South Africa, which are predicted to grow substantially even in 2009. The second class of resilient LDC exporter is composed of those countries which export mainly at the regional level. This is especially the case for West African countries. The rest of the countries tend to export mainly to developed country markets which are projected to experience significantly negative growth rates in 2009.

On the other hand services exports appear to be more resilient to the crisis than goods' exports – although this is less the case for tourism, which is the only service export of some importance for a number of LDCs (including Sierra Leone, Maldives, Gambia, Cambodia and Tanzania).

According to our computations, most LDCs are predicted to have fairly sizable negative effects from the drop in exports induced by the GFC. The only countries which are expected to experience positive growth in exports are Mali, Burundi, Guinea and Malawi, due to their dependence on gold or basic agricultural exports such as tobacco, combined with a low reliance on negatively affected export markets and services exports. At the other end of the spectrum countries heavily reliant on minerals and fuels, like Angola, Zambia and Mozambique, as well as countries relying on tourism and developed country markets, such as Cambodia and Maldives, are likely to be the most negatively affected ones.

It is difficult for LDCs to respond to the trade-induced effects of the crisis, given their limited fiscal space (in the context of shrinking trade-related taxes which represent a large part of government revenues), exchange rate policy and little influence in the international trade arena. However, eliminating taxes on exports, ensuring timely finance to credit constrained domestic firms, reducing the (relatively high) costs of trading may be helpful short-term responses to limit the adverse trade effects of the crisis. The crisis may also sound an alarm bell for small states to act upon certain trade-related policies. These countries should aim to diversify their export markets as well as their export sectors (especially when these are minerals), upgrade and develop trade-related infrastructures to reduce the penalties of being landlocked and remote. The international community, both in the trade and aid arenas, may help in some of these objectives via more effective rules for preferential market access for LDCs, via helping expand access to credit for cash constrained firms in LDCs, and via aid for infrastructure (both soft and hard), which could also represent part of an important stimulus package during the crisis.

Finally the international community has a key role to play in adopting policies to help international trade withstand the adverse effects of the crisis by fighting protectionism, guaranteeing adequate funds to sustain trade finance and providing effective aid for trade. It is in the particular interest of small states to support and stimulate such initiatives.

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## Annex

**Table A1. Most important WTO LDC exports by sector and country**

SITC Rev. 3	Description	Countries for which important <sup>a</sup>	Value of exports (\$ mn) <sup>b</sup>
	<b>Total WTO LDC exports</b>		<b>91,660</b>
	<b>Total these 73 codes</b>		<b>78,407</b>
	<b>Share of selected codes</b>		<b>86%</b>
001	Live animals except fish	Djibouti, Niger	190
034	Fish, live/frsh/chld/froz	Gambia, Maldives, Mauritania, Senegal, Solomons, Tanzania, Uganda	706
035	Fish, dried/salted/smoked	Gambia	0.4
036	Crustaceans molluscs etc	Bangladesh, Gambia, Madagascar, Mozambique, Senegal	877
037	Fish/shellfish, prep/pres	Madagascar	34
046	Flour/meal wheat/meslin	Tanzania	41
048	Cereal etc flour/starch	Nepal	8
054	Vegetables, frsh/chld/frz	Gambia, Myanmar, Nepal, Tanzania, Uganda	737
057	Fruit/nuts, fresh/dried	Benin, Gambia, Guinea-Bissau	42
061	Sugar/mollasses/honey	Malawi, Sierra Leone	58
071	Coffee/coffee substitute	Burundi, Rwanda, Tanzania, Uganda	614
072	Cocoa	Sierra Leone, Uganda	58
074	Tea and mate	Burundi, Malawi, Rwanda, Tanzania, Uganda	256
075	Spices	Madagascar, Nepal	96
081	Animal feed ex unml cer.	Gambia, Nepal	12
098	Edible products n.e.s.	Senegal	36
111	Beverage non-alcohol nes	Togo	11
112	Alcoholic beverages	Uganda	25
121	Tobacco, raw and wastes	Malawi, Mozambique, Tanzania, Uganda	944
122	Tobacco, manufactured	Benin, Gambia, Senegal	92
222	Oil seeds etc - soft oil	Burkina, Gambia, Tanzania	48
247	Wood in rough/squared	CAR, Myanmar, Solomons	847
248	Wood simply worked	Myanmar	156
263	Cotton	Benin, Burkina, Mali, Tanzania, Togo	626
269	Worn clothing etc	Gambia	0.4
272	Fertilizers crude	Togo	31
277	Natural abrasives n.e.s.	CAR	20
278	Other crude minerals	Senegal	31
281	Iron ore/concentrates	Mauritania	774
282	Ferrous waste/scrap	Gambia, Senegal	29
283	Copper ores/concentrates	DRC, Zambia	764
285	Aluminium ores/concs/etc	Guinea, Sierra Leone	809
286	Uranium/thorium ore/conc	Niger	289
287	Base metal ore/conc nes	DRC, Madagascar, Rwanda, Sierra Leone, Uganda	506
289	Precious metal ore/conc.	Tanzania	201
292	Crude veg materials nes	Tanzania, Uganda	81
333	Petrol./bitum. oil, crude	Angola, Chad, DRC, Mauritania	41,336
334	Heavy petrol/bitum oils	Djibouti, Madagascar, Mozambique, Senegal, Sierra Leone	921
343	Natural gas	Myanmar	2,068
351	Electric current	Mozambique	226
421	Fixed veg oil/fat, soft	Benin	9
422	Fixed veg oils not soft	Solomons	14
431	Animal/veg oils proces*d	Nepal, Uganda	77
522	Elements/oxides/hal salt	Senegal	221
553	Perfume/toilet/cosmetics	Nepal, Senegal	73
554	Soaps/cleansers/polishes	Uganda	24
562	Manufactured fertilizers	Senegal	42
651	Textile yarn	Nepal	35
653	Man-made woven fabrics	Nepal	8
658	Made-up textile articles	Nepal	11
659	Floor coverings etc.	Nepal	41
661	Lime/cement/constr mat"l	Benin, Senegal, Togo, Uganda	336
667	Pearls/precious stones	CAR, DRC, Lesotho, Sierra Leone, Tanzania	851
673	Flat rolled iron/st prod	Nepal	9
674	Rolled plated m-steel	Nepal, Togo, Uganda	67

SITC Rev. 3	Description	Countries for which important <sup>a</sup>	Value of exports (\$ mn) <sup>b</sup>
676	Iron/steel bars/rods/etc	Benin, Senegal, Togo	95
679	Iron/steel pipe/tube/etc	Uganda	37
682	Copper	DRC, Nepal, Zambia	3,348
684	Aluminium	Mozambique	1,452
689	Misc non-ferr base metal	DRC	207
699	Base metal manufac nes	Gambia	0.3
724	Textile/leather machinry	Sierra Leone	24
784	Motor veh parts/access	Sierra Leone	7
792	Aircraft/spacecraft/etc	Senegal	36
841	Mens/boys wear, woven	Bangladesh, Haiti, Lesotho, Madagascar, Myanmar, Nepal	4,138
842	Women/girl clothing wven	Bangladesh, Madagascar, Nepal	1,623
843	Men/boy wear knit/croch	Bangladesh, Cambodia, Nepal	1,145
844	Women/girl wear knit/cro	Bangladesh, Cambodia	1,394
845	Articles of apparel nes	Bangadesh, Cambodia, Haiti, Lesotho, Madagascar, Nepal	5,211
846	Clothing accessories	Nepal	20
892	Printed matter	Cambodia, Uganda	670
893	Articles nes of plastics	Nepal, Tanzania	53
971	Gold non-monetary ex ore	Burundi, Guinea, Mali, Tanzania	2,528

**Notes:**

(a) 'Important' defined as contributing, alone or in combination with other products, to a minimum of 75% of the total value of exports of one or more of the WTO LDCs.

(b) Value of exports by the countries listed in the previous column in the most recent year for which data available.

*Source:* Authors' calculations based on the most recent year's exports reported by these countries to the UN's Comtrade database – except in the case of Sierra Leone (for which the 2002 data reported are anomalous), Angola, Chad, Haiti and Myanmar (which have not reported any data this century) and DRC and Djibouti (which are not reporters to Comtrade); for these seven countries mirror data (based on imports in 2007 as reported to Comtrade by 159 countries) have been used.

**Table A2. Share of main export sectors in individual WTO LDC total exports**

Name	# codes identified as important <sup>a</sup>	Value (\$ mn)	Share of total export value
<b>Totals</b>		<b>78,407</b>	<b>85.6%</b>
Guinea-Bissau	1	23	98.6%
Chad	1	2,380	94.7%
Angola	1	38,324	94.0%
Cambodia	4	2,497	89.3%
Mali	2	1,640	85.5%
Guinea	2	1,239	83.4%
DRC	6	1,707	82.5%
Maldives	1	104	82.3%
Djibouti	2	170	81.5%
Solomon Islands	3	126	79.5%
Rwanda	3	274	79.1%
Burkina Faso	2	263	79.0%
Mauritania	3	1,283	78.9%
Togo	6	221	78.8%
Malawi	3	680	77.4%
Zambia	2	3,723	77.4%
Myanmar	5	3,816	77.3%
CAR	3	89	76.9%
Haiti	2	473	76.7%
Nepal	19	496	76.0%
Gambia, The	11	11	75.8%
Tanzania	13	1,488	75.7%
Burundi	3	107	75.6%
Madagascar	8	1,170	75.6%
Uganda	15	1,017	75.6%
Bangladesh	6	9,925	75.5%
Lesotho	3	731	75.5%
Sierra Leone	8	301	75.5%
Niger	2	336	75.4%
Mozambique	5	1,996	75.2%
Benin	6	169	75.1%
Senegal	13	1,628	75.0%

Source: See Table A1.

## A. Computation of the merchandise sectoral trade exposure index

We calculate year-on-year variations in import values for the periods December 2008–May 2009 (Feb–July 2009 for the US) and March 2008–May 2009 (May–Jul 2009 for the US). These are reported in Table A3 below. The changes in import values are similar in the US and the EU, although some differences – sometimes substantial – do emerge. As these two markets represent a substantial share of total demand in all sectors, an average of the variations across them would be a good approximation of export behaviour in the individual sectors. For each sector  $s$  we take the average of the import value variation over three and six months:

$$\hat{g}_s = [\Delta m_s^{EU} (Mar - May) + \Delta m_s^{US} (May - Jul) + \Delta m_s^{EU} (Dec - May) + \Delta m_s^{US} (Feb - Jul)] / 4 \quad (1)$$

where  $\Delta$  is the year-on-year percentage change and  $m$  are imports. We take this value as a first approximation of the extent to which each of the major small states' export sectors is affected by the GFC.

Matching these sectoral results with the sectoral composition of countries' exports we are able to compute an indicator of merchandise (sectoral) trade resilience for each country. This is calculated as follows for each country  $j$ :

$$TR_s = \frac{\sum_{S \in S_j} \hat{g}_s \times X_s}{\sum_{S \in S_j} X_s} \quad (2)$$

where  $\hat{g}_s$  is computed as in (1) unless the EU or the US are a particularly important market for country  $j$ . If that is the case, then  $\hat{g}_s$  is computed only on the basis of changes in import values of the important export market. For example the EU covers 76% of Sierra Leone's exports; therefore we consider only changes in EU imports for computing Sierra Leone's sectoral trade exposure index. On the other hand 82% of Haiti's export goes to the US, thus we use US changes in imports to compute the index for Haiti.  $X_s$  is total export of product  $s$  by the country and  $S_j$  are all the sectors which country  $j$  exports.

**Table A3. Variation in import values and unit values for the EU and US**

SITC Rev. 3 code	Description	EU UVs for imports from extra-EU		Change in total import value: 08/09 over 07/08						
		Change in avg. UV: 08/09 over 07/08		EU imports from extra-EU			US imports from world			Avg. EU and US last 3 and 6 months
		Last 6 months (Dec.-May)	Last 3 months (Mar.-May.)	Last 6 months (Dec.-May)	Last 3 months (Mar.-May.)	Avg. of last 6 months & last 3 months	Last 6 months (Feb.-Jul.)	Last 3 months (May-Jul.)	Avg. of last 6 months & last 3 months	
001	Live animals except fish	-7.7%	-26.5%	-9.4%	-12.8%	-11.1%	-28.8%	-30.1%	-29.4%	-20.3%
034	Fish,live/frsh/chld/froz	-2.0%	-1.3%	-0.1%	0.2%	0.0%	1.5%	0.1%	0.8%	0.4%
035	Fish,dried/salted/smoked	-17.2%	-20.9%	-34.1%	-41.0%	-37.6%	5.1%	-6.4%	-0.6%	-19.1%
036	Crustaceans molluscs etc	-4.1%	-3.9%	-10.4%	-13.3%	-11.9%	-8.1%	-2.2%	-5.1%	-8.5%
037	Fish/shellfish,prep/pres	11.0%	6.9%	8.8%	4.1%	6.4%	-2.0%	-2.3%	-2.1%	2.2%
046	Flour/meal wheat/meslin	28.4%	8.5%	28.9%	10.9%	19.9%	-33.5%	-43.4%	-38.4%	-9.3%
048	Cereal etc flour/starch	3.1%	0.9%	4.1%	2.2%	3.1%	-4.5%	-5.7%	-5.1%	-1.0%
054	Vegetables,frsh/chld/frz	23.7%	14.2%	1.1%	4.8%	2.9%	-6.7%	-4.6%	-5.6%	-1.4%
057	Fruit/nuts, fresh/dried	0.0%	1.4%	-1.8%	-1.8%	-1.8%	5.5%	7.4%	6.4%	2.3%
061	Sugar/mollasses/honey	18.2%	15.0%	-5.5%	-8.2%	-6.9%	33.3%	31.3%	32.3%	12.7%
071	Coffee/coffee substitute	5.6%	-0.3%	6.6%	-0.2%	3.2%	-8.5%	-6.0%	-7.3%	-2.1%
072	Cocoa	24.3%	23.1%	22.5%	28.2%	25.4%	8.6%	28.4%	18.5%	21.9%
074	Tea and mate	17.0%	10.5%	3.1%	0.6%	1.9%	-0.4%	-0.1%	-0.3%	0.8%
075	Spices	-2.0%	-0.9%	-0.9%	3.6%	1.4%	-11.8%	-13.6%	-12.7%	-5.6%
081	Animal feed ex unml cer.	-3.3%	-4.6%	-9.7%	-4.3%	-7.0%	3.0%	0.1%	1.5%	-2.7%
098	Edible products n.e.s.	6.8%	6.3%	13.1%	11.8%	12.4%	-2.7%	-4.7%	-3.7%	4.4%
111	Beverage non-alcohol nes	90.3%	145.4%	-3.1%	1.8%	-0.7%	-14.9%	-16.2%	-15.6%	-8.1%
112	Alcoholic beverages	-8.7%	-9.8%	-2.4%	-3.0%	-2.7%	-10.1%	-10.9%	-10.5%	-6.6%
121	Tobacco, raw and wastes	20.0%	24.9%	17.5%	25.1%	21.3%	8.3%	-25.4%	-8.5%	6.4%
122	Tobacco, manufactured	22.9%	6.2%	-1.2%	-0.5%	-0.8%	5.4%	-30.6%	-12.6%	-6.7%
222	Oil seeds etc - soft oil	-10.1%	-11.9%	-2.6%	-4.4%	-3.5%	-27.9%	-35.0%	-31.5%	-17.5%
247	Wood in rough/squared	0.7%	0.8%	-61.0%	-63.2%	-62.1%	-35.6%	-42.5%	-39.1%	-50.6%
248	Wood simply worked	6.9%	-1.4%	-37.0%	-38.6%	-37.8%	-46.2%	-45.8%	-46.0%	-41.9%
263	Cotton	1.6%	-2.0%	-36.6%	-39.3%	-37.9%	-73.2%	-78.9%	-76.1%	-57.0%
269	Worn clothing etc	27.1%	35.1%	7.0%	5.7%	6.3%	-28.4%	-33.0%	-30.7%	-12.2%
272	Fertilizers crude	45.2%	4.6%	-50.6%	-58.6%	-54.6%	-23.2%	-58.7%	-41.0%	-47.8%
277	Natural abrasives n.e.s.	-64.0%	-58.5%	-52.6%	-55.4%	-54.0%	-53.2%	-61.5%	-57.3%	-55.7%
278	Other crude minerals	8.0%	5.0%	-25.9%	-38.3%	-32.1%	-33.2%	-40.2%	-36.7%	-34.4%
281	Iron ore/concentrates	36.9%	16.7%	-43.5%	-62.7%	-53.1%	-56.1%	-55.8%	-56.0%	-54.5%
282	Ferrous waste/scrap	-48.5%	-52.5%	-67.9%	-75.1%	-71.5%	-62.8%	-70.1%	-66.5%	-69.0%
283	Copper ores/concentrates	-41.6%	-42.5%	-42.6%	-50.7%	-46.7%	-82.9%	-98.5%	-90.7%	-68.7%
285	Aluminium ores/concs/etc	13.7%	-17.3%	-27.2%	-49.0%	-38.1%	-40.5%	-56.6%	-48.5%	-43.3%

SITC Rev. 3 code	Description	EU UVs for imports from extra-EU		Change in total import value: 08/09 over 07/08						
		Change in avg. UV: 08/09 over 07/08		EU imports from extra-EU			US imports from world			Avg. EU and US last 3 and 6 months
		Last 6 months (Dec.-May)	Last 3 months (Mar.-May.)	Last 6 months (Dec.-May)	Last 3 months (Mar.-May.)	Avg. of last 6 months & last 3 months	Last 6 months (Feb.-Jul.)	Last 3 months (May-Jul.)	Avg. of last 6 months & last 3 months	
286	Uranium/thorium ore/conc	a	a	45.0%	-100.0%	-27.5%	93.9%	10.4%	52.2%	12.4%
287	Base metal ore/conc nes	-22.1%	-30.1%	-59.0%	-68.8%	-63.9%	-52.0%	-55.9%	-53.9%	-58.9%
289	Precious metal ore/conc.	-14.7%	14.4%	-43.5%	-37.3%	-40.4%	-53.9%	-67.9%	-60.9%	-50.7%
292	Crude veg materials nes	-14.1%	-5.9%	2.7%	1.5%	2.1%	-5.9%	-5.2%	-5.6%	-1.8%
333	Petrol./bitum. oil,crude	-45.3%	-44.5%	-47.9%	-48.0%	-47.9%	-53.8%	-54.5%	-54.2%	-51.0%
334	Heavy petrol/bitum oils	-41.3%	-47.1%	-34.2%	-37.6%	-35.9%	-48.4%	-50.4%	-49.4%	-42.7%
343	Natural gas	5.8%	-17.6%	-4.3%	-26.4%	-15.3%	-50.7%	-62.9%	-56.8%	-36.1%
351	Electric current	a	a	31.1%	20.8%	26.0%	-37.2%	-51.9%	-44.5%	-9.3%
421	Fixed veg oil/fat, soft	-16.1%	-25.6%	-22.4%	-37.1%	-29.8%	-27.9%	-29.1%	-28.5%	-29.1%
422	Fixed veg oils not soft	-13.7%	-20.9%	5.6%	-17.7%	-6.1%	-28.6%	-49.4%	-39.0%	-22.5%
431	Animal/veg oils proces"d	-14.9%	-22.0%	-15.8%	-32.3%	-24.1%	-40.0%	-45.7%	-42.9%	-33.5%
522	Elements/oxides/hal salt	-18.9%	-28.0%	-23.9%	-36.0%	-30.0%	-46.4%	-54.8%	-50.6%	-40.3%
553	Perfume/toilet/cosmetics	11.1%	12.9%	-3.2%	-5.1%	-4.2%	-11.0%	-8.1%	-9.5%	-6.9%
554	Soaps/cleansers/polishes	3.0%	0.7%	-4.7%	-10.7%	-7.7%	-11.8%	-12.9%	-12.3%	-10.0%
562	Manufactured fertilizers	-14.4%	-20.1%	-41.1%	-41.8%	-41.5%	-42.4%	-54.8%	-48.6%	-45.0%
651	Textile yarn	1.6%	0.4%	-29.2%	-32.0%	-30.6%	-26.5%	-28.1%	-27.3%	-28.9%
653	Man-made woven fabrics	12.3%	11.7%	-21.0%	-23.4%	-22.2%	-34.1%	-33.7%	-33.9%	-28.0%
658	Made-up textile articles	7.2%	7.8%	-3.1%	-5.8%	-4.4%	-12.4%	-11.9%	-12.1%	-8.3%
659	Floor coverings etc.	-0.4%	-0.5%	-8.2%	-6.7%	-7.5%	-27.1%	-26.7%	-26.9%	-17.2%
661	Lime/cement/constr mat"l	29.0%	11.1%	-33.6%	-29.3%	-31.4%	-37.8%	-37.9%	-37.9%	-34.6%
667	Pearls/precious stones	-28.2%	-12.2%	-43.8%	-37.2%	-40.5%	-48.1%	-44.5%	-46.3%	-43.4%
673	Flat rolled iron/st prod	-1.5%	-18.6%	-43.4%	-54.3%	-48.9%	-40.7%	-64.1%	-52.4%	-50.6%
674	Rolled plated m-steel	8.3%	-0.4%	-31.1%	-29.7%	-30.4%	-23.2%	-36.5%	-29.8%	-30.1%
676	Iron/steel bars/rods/etc	-7.5%	-13.4%	-50.5%	-68.1%	-59.3%	-53.7%	-70.3%	-62.0%	-60.7%
679	Iron/steel pipe/tube/etc	36.9%	33.2%	-29.7%	-41.8%	-35.8%	-5.1%	-41.6%	-23.3%	-29.5%
682	Copper	-39.7%	-42.5%	-53.3%	-56.3%	-54.8%	-55.2%	-61.0%	-58.1%	-56.4%
684	Aluminium	-18.0%	-24.9%	-47.5%	-52.5%	-50.0%	-41.9%	-49.6%	-45.8%	-47.9%
689	Misc non-ferr base metal	-14.4%	-17.8%	-56.5%	-63.5%	-60.0%	-53.3%	-58.2%	-55.8%	-57.9%
699	Base metal manufac nes	16.1%	19.0%	-14.4%	-20.8%	-17.6%	-30.1%	-31.3%	-30.7%	-24.2%
724	Textile/leather machinry	-0.6%	-0.6%	-35.8%	-38.4%	-37.1%	-16.6%	-22.3%	-19.4%	-28.3%
784	Motor veh parts/access	4.9%	7.0%	-38.5%	-42.2%	-40.3%	-44.6%	-44.8%	-44.7%	-42.5%
792	Aircraft/spacecraft/etc	40.9%	52.8%	39.2%	42.5%	40.9%	-19.3%	-14.0%	-16.7%	12.1%
841	Mens/boys wear, woven	10.0%	11.0%	1.2%	-4.2%	-1.5%	-14.6%	-17.5%	-16.1%	-8.8%
842	Women/girl clothing wven	2.3%	10.8%	5.0%	1.9%	3.4%	-16.7%	-16.9%	-16.8%	-6.7%
843	Men/boy wear knit/croch	13.0%	10.9%	2.7%	-1.1%	0.8%	-15.5%	-18.7%	-17.1%	-8.2%
844	Women/girl wear knit/cro	15.2%	14.8%	6.6%	4.4%	5.5%	-9.1%	-10.1%	-9.6%	-2.0%
845	Articles of apparel nes	6.3%	8.4%	3.3%	-1.1%	1.1%	-9.9%	-12.8%	-11.4%	-5.1%
846	Clothing accessories	6.5%	15.2%	4.0%	-1.6%	1.2%	-4.6%	-6.4%	-5.5%	-2.1%
892	Printed matter	10.1%	9.8%	-1.4%	-1.3%	-1.4%	-24.7%	-28.0%	-26.3%	-13.8%
893	Articles nes of plastics	7.4%	4.2%	-7.9%	-11.2%	-9.6%	-14.9%	-15.5%	-15.2%	-12.4%
971	Gold non-monetary ex ore	27.0%	41.9%	99.1%	116.5%	107.8%	11.3%	35.6%	23.5%	65.6%

Note:  
(a) Volume data incomplete.  
Sources: Derived from data obtained from Eurostat COMEXT database and USITC Interactive Tariff and Trade DataWeb.

## B. Computing the trade exposure index based on export markets

In a similar fashion to the sectoral trade resilience index we also compute the export markets trade exposure index. This is based on the idea that potential demand for a country's exports is driven by its trading partners' income as well as its types of exports. Similarly to the index developed in (2), we compute the following export markets-based merchandise trade resilience index for each country  $j$ :



$$TR_i = \frac{\sum_{i \in I_j} \hat{g}_i \times X_i}{\sum_{i \in I_j} X_i} \quad (3)$$

where  $i$  is the export market and  $I_j$  is the vector of all export markets (for which projected growth data are available) of country  $j$ ;  $\hat{g}_i$  is the forecast growth rate of country  $i$  according to IMF (2009b) latest projections and  $X_i$  is the total value of merchandise exports of country  $j$  to country  $I$  (based on the latest year for which data are available in Comtrade). See Table A4 below for the projected GDP growth rates of the advanced economies according to the IMF (2009).

The basic assumption of this index is an income elasticity of all imports for all countries of 1. This is obviously implausible as it should depend on the types of products imported, among the other things. However we believe the index thus calculated still provides a good indication of the potential effects of dwindling incomes in the major importing countries.

**Table A4. Projected growth rates in advanced economies for 2009**

	2009 proj.		2009 proj.
Iceland	-10.6	Czech Republic	-3.5
Singapore	-10.0	France	-3.0
Ireland	-8.0	Spain	-3.0
Taiwan	-7.5	Austria	-3.0
Japan	-6.2	Switzerland	-3.0
Germany	-5.6	US	-2.8
Finland	-5.2	Slovenia	-2.7
Netherlands	-4.8	Canada	-2.5
Luxembourg	-4.8	Slovak	-2.1
Hong	-4.5	New Zealand	-2.0
Italy	-4.4	Norway	-1.7
Sweden	-4.3	Israel	-1.7
Portugal	-4.1	Malta	-1.5
UK	-4.1	Australia	-1.4
Korea	-4.0	Greece	-0.2
Denmark	-4.0	Cyprus	0.3
Belgium	-3.8	<b>Advanced economies</b>	<b>-3.8</b>
<i>Source: IMF(2009b)</i>			