



Agri-processing and Developing Countries¹

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Executive summary

The importance of the agri-processing sector for developing countries is currently being reassessed in the light of two distinct although inter-related trends. On the one hand, important changes have been observed in global food trade with processed products now predominating in developing country exports and imports. Demographic trends, on the other hand, indicate that almost all net, population growth is now concentrated in developing countries in a context of rapid urbanization in all continents, albeit at different stages. Urbanization, which of itself demands a different organization of the food system in which the preservation of foodstuffs becomes strategic is accompanied in middle-income developing countries, by a dietary transition stimulating new food categories, and by the demand for convenience foods. The importance and roles attached respectively to trade and to foreign investment (FDI) when discussing the food-processing sector in developing countries is influenced by the relative weight attributed to each of these two overall trends.

Processed foods now account for some 80% of global food sales estimated at US\$4 trillion in 2002. Packaged food corresponds to only one third or less of total food expenditure in developing countries but their retail sales are from 3 to 10 times faster than in developed countries where growth has stagnated. Analysis of the UNIDO Industrial Statistics Database, 2005 show that food processing in developing countries is an important component of the manufacturing sector, growing as a percentage of GDP as income increases, although with a proportionate declining share in total manufacturing. Data on food processing in developing countries is, however, incomplete and the importance of the informal sector can vary from 20% to 70% of the food industry depending on product category and country. Ten per cent of processed food products are traded globally and trade growth has stalled since the middle '90s. The share of processed foods as a proportion of total agricultural exports has increased sharply for all developing countries. On the other hand, since the '90s most, least developing countries (LDC) have become net food importers, with the majority of these imports corresponding to processed foods.

Two very different approaches, factor endowment and global value (GVC) analysis, have identified the key role of “non-traditional” food exports for developing countries, geared primarily to developed markets and comprising fruits and vegetables, poultry, dairy and especially fish/seafood products (30% of total exports of this category). Tendencies within food processing are analyzed here in the context of global trends in manufacturing out-sourcing. Within this perspective, the complementarities between FDI and non-traditional exports are given pride of place. Other authors would highlight the specific features of the food industry suggesting a more diffuse transnationalization based on strategies of proximity to consumer markets. In this light, FDI is more associated with the burgeoning markets for processed food in developing countries.

Almost all, future growth in the world population, calculated to increase by a further 2.5 billion to 9 billion, is projected to occur in developing countries, primarily in Africa and Asia, before stabilization. At different rhythms, this population growth in developing countries is being accompanied by increasing urbanization. To the extent that urbanization has been accompanied by the growth of formal employment opportunities this has led to a dietary transition towards convenience foods, animal protein, especially fresh dairy products, and higher consumption of fresh fruit and vegetables. As a result, modern food systems based on packaged food production

and supermarket retail outlets are now present in most lower and upper middle-income developing countries according to the World Bank classification.

Most developing countries, even the LDCs which are exempt from many of the demands of the WTO, have undergone far-reaching institutional reforms, often under pressure from donor and investment organizations, but also as a response to both domestic and export market stimuli. The results have been uneven but the reforms have established a new regulatory framework for domestic market growth and access to export markets.

FDI in processed food continues to be concentrated in the Triad countries, with each of these blocs, however, revealing specific spheres of influence in developing country regions. As flows to China, Asia and probably soon, India, increase, regional spheres of interest become complemented by more global patterns of investment whether for out-sourcing or host market development.

By 1995 over 20 percent of US food processing FDI was already directed to developing countries other than the Mercosul and the Western hemisphere. Europe's four leading food firms, on the other hand, had Eur 67 billion sales outside Europe in 2000, with three of these totaling 305,000 employees outside Europe, and all strongly implanted in developing countries. Many other firms in the "other foods", drinks and dairy categories have solid investments in developing countries. The Japanese strategy of FDI has been geared to regional off-shore production as its food trade balance makes clear – in 2000 Japan's food imports amounted to US\$50.5 billion as against US\$2.3 billion in the case of exports.

South-South FDI is also becoming an important factor as developing country leading firms adopt more global strategies and as developing countries themselves advance in the direction of regional blocs. FDI in food processing is at the same time very concentrated since, with the exception of Japan, the host market presents itself as the prime objective and presupposes therefore a level of effective demand provided by a solid urban middle class.

In the case of LDCs aid is more important as a source of long-term capital reaching US\$24.9 billion in 2004, the equivalent of 70 percent of total flows. With the shift in aid from infrastructure to grants and technical cooperation, there has been an increase in cooperation projects geared to agrofood development and in many developing countries international cooperation has provided the springboard for new forms of market insertion. FDI, in addition to aid especially in the case of the least developed countries, has therefore become a key component in the globalization of developing country food systems both as this affects their domestic markets and their participation in international trade. The novelty of the current situation is the simultaneous transnationalization of the retail sector in developing countries, which in turn exerts pressure on the whole of the food processing sector and involves a reorganization of vertical relations back through to the primary sector.

The major transformations redefining the world food system since the 1970s have been generically captured in the notion of a shift from a supply to a demand oriented system, leading to buyer driven supply structures. Non-traditional exports, as we have seen, have privileged fresh products, thereby relocating some value-adding activities close to agriculture. This has not been true, however, for traditional developing country export commodities (coffee, cocoa, cotton,

rubber, tea) where the same demand trends have concentrated value-added even further at the service end of the chain. This can be seen most clearly in the coffee supply chain, where producer country value added has tended to be undermined even further as developing country production is reduced to an undifferentiated industrial input. The result has been a long historic decline in prices with catastrophic impact on small farmer income in dozens of developing countries, in a commodity chain involving some 25 million farmers worldwide

Import surges, which have increased since the '90s and become at the same time more frequent, have been seen to be one of the principal negative consequences of liberalization measures and have been the object of monitoring by FAO. In addition to primary commodities, these also involve processed goods which undermine the promotion of domestic food processing industries in these sectors. In the case of poultry, we are in addition dealing with the effects of increasing South-South trade since the poultry in question is largely imported from Brazil.

Tariff barriers, particularly tariff peaks and tariff escalation are major factors inhibiting developing country exports of processed products and were a major issue of negotiation in the Doha round. Subsidized exports of processed foods are the obverse of such a policy and similarly may undercut efforts to develop both agriculture and food processing. In the case of the European Union, the two types of measures have been part of a coherent agrofood policy whose consequences for developing countries are to stimulate the export of non-competitive (tropical) agricultural products and import processed food products from Europe's and their own agriculture.

Although key issues of tariff barriers remain on the table, the focus of debate has shifted to the importance of the new health, environmental and quality standards governing international and increasingly domestic food trade. In the context of international trade the central issue focuses on the way in which different countries apply the SPS provisions within the framework of the WTO. A prevalent argument has been that SPS measures which exceed the Codex levels are resorted to as a non-tariff barrier related more to protectionist interests than health concerns. A central issue, for some analysts, is the poor participation of developing countries in the definition of the rules of the game and the implementation of the SPS as a result of both the costs and the expertise required. Others suggest that a more realistic strategy would be to restrict involvement in the implementation of the SPS system to specific key issues facing developing countries and concentrate on adjusting supply chains to the requirement of the systems. In this context, compliance costs are seen to be a major hurdle to such adjustments and the priority focus of cooperation programs. Clear winners and losers emerge in response to these non-tariff barriers and small countries, small supply chains and small-scale operators risk being squeezed out.

The growing dominance of retail where logistical and quality criteria are generally invoked in the name of the consumer has stimulated the greater part of the literature on standards and supply chain coordination. Before retail, however, food processing and trader interests predominated in the definition of quality and here the qualities promoted were justified according to different criteria, the better functioning of impersonal markets in the latter case and the technical requirements of inputs in the former. Qualities are the form in which economic actors qualify their interests, which may become accepted as common interests (for instance in the case of specific food safety measures) or exposed as sectoral concerns which may be at variance with those of other actors (GMOs would be an emblematic example here). In addition, different types

of actors may propose different solutions to the same common interests (food safety would again be the paradigm case) leading either to the co-existence of different forms of economic coordination or to the imposition of one or other as the norm, with different consequences for the inclusion or exclusion of specific groups of actors.

In line with our extended definition of agri-processing five different types of interests can be identified: the informal processing sector, artisan production, primary processing, food manufacturing, and food packing activities. The latter as first tier suppliers are strictly controlled by retail; the informal sector may evolve into artisan production which is governed by *sui generis* standards or form the PME segment of the dominant agrofood system where it will adjust variously to industry and retail standards; primary processing and food manufacturing may in their turn form a continuum or develop separate systems of coordination.

The very different appreciations of contract farming in the literature point to the great difficulty of generalizations since the relative merits of different forms of economic coordination depend on so many variables – the agrarian structure, levels of urbanization, the institutional framework, the stage of development and the functioning of domestic markets and the form of integration in global markets. We have also noted that contract arrangements have been in operation in Latin America at least since the 1970s indicating that the motivations of agri-processing firms may also be quite varied. In some cases it may be a supply strategy to be replaced by markets once production has crossed a critical threshold. In other cases, a strategy to monopolize raw material supplies against possible competition. Yet again it may be the need to tailor inputs to specific industrial requirements. In all these cases, even though only temporarily, the agricultural input acquires a differentiating quality making it the object of specific coordination arrangements. To the extent that qualities of the agricultural product are intrinsic to the transaction value of the food ingredient or final food product, arms length transaction will tend to give way to more contractual arrangements.

NGO's are even more central to the coordination of supply chains in many developing countries and particularly in LDCs where aid rather than FDI has been seen to play a decisive role. An ideal typical LDC, a net food importer, would include an enclave, high-value food export sector, a small holder, traditional commodity exports sector and a vast informal food sector geared to the domestic market in competition with processed food imports. Coordination of this informal sector focuses on the promotion of value-added activities in the form of food (and non-food) processing for urban markets and eventually exports. Here the issue is not that of contract farming, since the sector is not generally courted by the formal food industry sector, but that of "rural-urban marketing linkages".

A number of critical strategy and policy issues emerge from the foregoing analysis. In spite of the increasing heterogeneity of the developing world general tendencies can be identified which affect most countries. Although there has been some recovery in prices the crisis of the traditional commodity sector persists as also the traditional division of labor between primary exports from developing countries and processing/manufacturing and increasingly services, which are almost exclusively reserved to the major consumer countries. The most promising strategies, which could become the basis of policies for the sector, have been those directed at renegotiating the quality attributes of primary production, in line with social and environmental criteria. The

collapse of commodity prices with the dismantling of international regulatory mechanisms would also suggest that some measure of re-regulation would be in order extreme price fluctuations.

A solution to the crisis of traditional exports has been the promotion of high value exports in new product categories, which are seen to have greater demand elasticity, are highly labor intensive and have a high net trade surplus. These opportunities, however, tend to be skewed to middle income developing countries, and to be limited to only a few, albeit very dynamic, product categories. In addition they are heavily dependent on hydric resources. Post harvest value-added activities are very often involved but the producer country share of the global value chain is heavily in favor of the consumer country. The policy implications would similarly point to the need to renegotiate the terms of this productive relocation, which in many cases has severe environmental implications. At the same time, it suggests that while being an important component of development strategies it does not represent an alternative to the crisis of the traditional commodity export sector, reaffirming, therefore, the need for specific policies to address this sector.

The transnational food firms now operate globally but regulatory powers to the extent that they exist remain national. Although these transnationals have shown themselves little vulnerable to national governments and workforces, they have been repeatedly brought to the negotiating table by international NGOs, which have focused on their labor and environmental record. NGOs are now strategic actors in the food system and major sources of innovative policy proposals, as in their current campaign against corporate abuse. The price of TNCs global power is the adoption of corporate social responsibility, and having claimed the moral high ground issues of equity along the value chain should be raised alongside those of quality and adhesion to legal entitlements.

While, many positive initiatives have been identified resulting from international cooperation and from FDI in promoting dynamic farmer-market linkages the overall performance of LDCs suggests that the route out of poverty demands a more all-embracing development strategy. Competitive occupation of the domestic urban food market will be a necessary component of such a strategy to the extent that the majority of the population is still occupied in agricultural production, even though non-agricultural activity has now begun to grow more rapidly, albeit fundamentally in the informal sector.

The food system is currently being re-regulated through a mix of private-public standards which establish new entry barriers and constitute the basis also of competitive strategies in the most dynamic sectors of the food system. Standards, however, operate at all levels of the food system and have become the major focus of tensions whether between developed and developing countries or between categories of producers and consumers. In this context, it is important to go beyond providing an enabling environment for adjustment and strengthen programs designed to increase the ability of developing countries to participate in the negotiations on SPS and similar measures.

1 Introduction

The importance of the agri-processing sector for developing countries is currently being reassessed in the light of two distinct although inter-related trends.³ On the one hand, important changes have been observed in global food trade where processed products now predominate, which is the case also for both developing country exports and imports. Equally significant has been the change in the composition of food exports from developing countries, where what have become known as “non-traditional exports” lead the way. Various authors have identified these exports as providing new opportunities for development strategies. The same period, however, has experienced a historic crisis in traditional commodity exports, locked into primary production with minimal upgrading towards processing. Least developed countries (LDCs), for their part, have shifted from being net food exporters to net importers predominantly of processed products.

Demographic trends, on the other hand, indicate that almost all net, population growth is now concentrated in developing countries. In addition, this is occurring in the context of rapid urbanization in all continents, albeit at different stages. Urbanization of itself demands a different organization of the food system in which the preservation of foodstuffs becomes strategic. In middle-income developing countries, urbanization is also accompanied by a dietary transition stimulating new food categories, and by the demand for convenience foods. The importance and roles attached respectively to trade and to foreign investment (FDI) when discussing the food-processing sector in developing countries is influenced by the relative weight attributed to each of these two overall trends.

The food-processing sector itself has acquired an increasingly elastic connotation and straddles most activities involving the integrity of the agricultural product⁴ between the farm gate and the supermarket shelf. In addition to the traditional categories “semi-processed” and “processed”, new categories have emerged to capture value-adding activities, which are more concerned with preserving than transforming the agricultural product.⁵ In such cases, a reorganization of agricultural activities is intrinsic to the new “processing sector”.⁶ This category extension is consequently often captured in expressions such as “non-traditional food exports”, “high value foods” or even “dynamic agricultural products”.⁷ Official statistics, in addition to exhibiting important differences of definition depending on the source, are often unable to capture or clearly discriminate the full range of post-harvest value-adding activities. Statistical analysis needs therefore to be complemented by case-study research if a clearer appreciation of income, employment and growth implications is to be possible.

In the case of the domestic food markets of developing countries, the fragility of statistical data reflects rather the importance of the informal sector. Even in more advanced developing countries this sector can be as high as 20-40 percent for certain food chains, and in the case of the LDCs, as much as 70-80 percent of urban food supplies may be provided informally. Here, therefore, field studies become the principal source for understanding the dynamic of post-harvest productive

³ Our analysis presupposes the GSTI changes identified in the WDR terms of reference.

⁴ Strictly logistical and marketing activities are therefore excluded.

⁵ Packing houses are now as much a part of the processing sector as mills and crushing plants.

⁶ This may take the form of product mix or technical production norms.

⁷ The WTO (2004) identifies four distinct categorizations of agricultural trade by stage of processing or value-added content.

activities.⁸ In more consolidated urban contexts, however, such as many Latin American countries, the formal food processing sector predominates and official statistics are more reliable regarding the principal trends.

In this report we will first present a statistical profile of the food-processing sector in developing countries. This will be followed by a discussion of the considerable literature to have emerged around the two principal drivers identified above as responsible for the shaping of this sector in developing countries. Whether the focus is on export or domestic driven growth, key obstacles have been identified to the consolidation of a dynamic food-processing sector, related variously to entry barriers of different kinds, regulatory aspects, trade agreements or features of the competitive environment, and these will be examined in the third section. Common to most analyses is the identification of new patterns of coordinating food supply chains in response to higher and differentiated quality and health standards and more complex logistical requirements. These refer, above all, to closer linkages between farmers and downstream actors, often in the form of what has been called “obligational contracts”, involving specific commitments with regard to production procedures. These new organizational and institutional arrangements will be reviewed in the fourth section, with particular attention being paid to their implications for small farmer participation. The report will conclude with a discussion of the policy implications of the above analysis if the food-processing sector of developing countries is to become a strategic lever for dynamic growth.

2 General stylized facts on the food processing sector of developing countries

Global sales of food were estimated at US\$4 trillion in 2002, around 80 percent of which corresponding to processed food (US\$3.2 trillion) with over 40 percent accounted for by the foodservice sector. In the case of the retail sector US\$531 billion of food sales correspond to fresh products, while US\$1.7 trillion correspond to processed foodstuffs – about US\$1.1 trillion of which packaged food and US\$641 billion beverages (Gehlhar and Regmi 2005).

According to the *FAO Statistical Yearbook 2004* food consumption in high-income countries in 2002 represented 29 percent of the world consumption in terms of calories of food items and, following Gehlhar and Regmi's (2005) calculations based on the Euromonitor (2003), accounted for over 60 percent of packaged food sales worldwide and half of total food expenditures. While the annual per capita retail sales of packaged foods in high-income countries (henceforth HICs) corresponded to almost US\$1.000 in 2002, in upper-middle-income countries (UMICs) it was estimated at less than US\$300, in lower-middle-income countries (LMICs), at about US\$143 and in low-income countries at US\$63. Packaged food accounts for only a third or less of total food expenditures in most developing countries.

Although showing relatively low levels of packaged food consumption in developing countries, however, these figures are changing fast. According to the same authors, while retail sales of packaged foods have grown at about 2 or 3 percent per year in HICs, they have grown much

⁸ This can be complemented by modeling exercises such as those used by Euromonitor (2003) for estimating trends in a number of least developed countries.

faster among developing countries, ranging from 7 percent in UMICs to 28 percent in LMICs or 13 percent in LICs, particularly pushed by population growth.

Table 1. Growth in retail sales of packaged food and share in world food consumption/production

Country group	Per capita 2002 retail sales (US\$)	Total retail growth 1996-2002 (percent)	Share in world food production 2002 (group sum, percent)	Share in world food consumption 2002 (group sum, percent)
High-income	979	3.2	28	19
Upper-middle-income	298	8.1	13	11
Lower-middle-income	143	28.8	40	41
Low-income	63	12.9	19	29

Source: Gehlhar and Regmi (2005) and FAO, *FAO Statistical Yearbook 2004*

From the manufacturing production standpoint, the food processing sector occupies a relevant place in overall turnover and value added. In order to gather comparable data in a cross-country perspective, we used the *UNIDO Industrial Statistics Database 2005*, selecting countries for which data are available on a consistent basis and grouping them according to the World Bank country classification by level of income per capita. Figures include the International Standard Industrial Classification's subsections 151 (processed meat, fish, fruit, vegetables, fats) 152 (dairy products), 153 (grain mill products, starches, animal feeds) and 154 (other food products: bakery products, sugar, cocoa, chocolate and sugar confectionery, macaroni, noodles and other products) – ISIC, Revision 3, not including beverages and tobacco. In aggregated estimations we have considered the most recent data for each country, even though it does not signify perfect time uniformity.

General stylized facts point out that food processing is an important manufacturing sector particularly for the least and less developing countries, though huge heterogeneity may exist among them. Considering the group of LICs analyzed here, which include Bangladesh, Ethiopia, Eritrea, India, Mongolia, Senegal and Viet Nam, on average, about 17.5 percent of total manufacturing value added corresponds to the food processing sector. The sector value added over total manufacturing value added accounts for about 23 percent. Combining the four food processing sub-sectors (ISIC 151-4, *UNIDO Industrial Statistics Database 2005*) and dividing them by total GDP⁹, on average, we find that food processing participation on the overall gross product corresponds to around 2.4 percent in Viet Nam, 2.2 percent in Senegal, 2 percent in Ethiopia, 0.85 in Eritrea, 0.84 percent in Bangladesh and 0.77 percent in India.

⁹ GDP estimations from the *World Development Indicators Online*.

Table 2. Food processing participation in GDP and in total manufacturing value added – selected countries

	Year	% processed food in GDP	% processed food in total manufacturing	% VA over output
Bangladesh	1998	0.84	8.8	20.0
Ethiopia	2002	1.99	25.8	55.6
Eritrea	2001	0.85	11.4	18.4
India	2001	0.77	9.6	12.2
Mongolia	2000	-	15.5	-
Senegal	2002	2.21	34.1	17.7
Viet Nam	2000	2.39	16.8	15.3
Simple Average - LICs		1.5	17.4	23.2
Bolivia	1998	2.8	21.6	24.7
Brazil	2002	3.4	14.0	31.7
Bulgaria	2002	1.2	10.8	16.2
Ecuador	2002	-	20.1	25.0
Indonesia	2002	1.7	10.6	26.6
Morocco	2001	2.4	15.7	19.5
Peru	1996	-	13.0	27.3
Philippines	1999	-	10.5	39.0
Thailand	1998	2.0	13.9	21.1
Egypt	2002	1.2	15.6	20.4
Simple Average - LMICs		2.1	14.6	25.1
Argentina	1999	2.0	20.1	23.0
Czech Republic	1999	1.9	9.2	19.7
Hungary	2000	2.3	11.6	20.7
Mexico	2000	1.6	14.6	33.1
Oman	1997	5.7	14.4	31.2
Russia	2002	1.6	13.5	28.2
South Africa	1996	1.7	10.5	22.2
Turkey	2000	-	7.9	31.5
Uruguay	2000	2.5	22.6	23.5
Simple Average - UMICs		2.4	13.8	25.9

Source: UNIDO, *UNIDO Industrial Statistics Database 2005* and World Bank, *World Development Indicators Online*.

The participation of food processing value added in total manufacturing value added seems to fall slightly with the level of income per capita, while this participation in terms of GDP rises. Considering the LMICs Bolivia, Brazil, Bulgaria, Ecuador, Egypt, Indonesia, Morocco, Peru, Philippines and Thailand, on average, the sector's participation in GDP is estimated at 2.1 percent, while in relation to total manufacturing the figure corresponds to around 14-15 percent.

For the UMICs, including Argentina, Czech Republic, Hungary, Mexico, Oman, Russia, South Africa, Turkey and Uruguay, this participation accounts respectively to 2.4 percent and 13.8 percent. As regards the HICs, preliminary estimations suggest the food processing sector to be around 10 percent of the total manufacturing.

Processed meat, fish, fruit, vegetables and fats (ISIC 151) and bakery products, sugar, cocoa, chocolate and sugar confectionery, macaroni and noodles (ISIC 154) account for about two-thirds of the total food processing sector's value added, while grains and dairy products account for the rest. Products classified in the ISIC 154 group have the highest share of value added over output, in general between 30 percent and 40 percent, while the other categories remain at around 25 percent, with grains slightly below this mark.

Table 3. Food processing sub-sectors performance in total manufacturing

	Processed meet, fish, fruit, veks & fats	Dairy	Grains	Others: bakery, macaroni, chocolate...
% sub-sector value added in total manufacturing				
High-income	4.04	1.59	1.05	4.39
Upper-middle-income	5.82	1.98	2.19	4.91
Lower-middle-income	7.05	1.53	2.24	4.55
Low-income	4.61	1.46	3.59	8.79
% sub-sector value added over sub-sector output				
High-income	24.3	22.7	21.7	39.6
Upper-middle-income	24.7	24.9	21.5	35.9
Lower-middle-income	25.6	26.8	19.6	28.8
Low-income	22.1	25.2	24.3	35.0

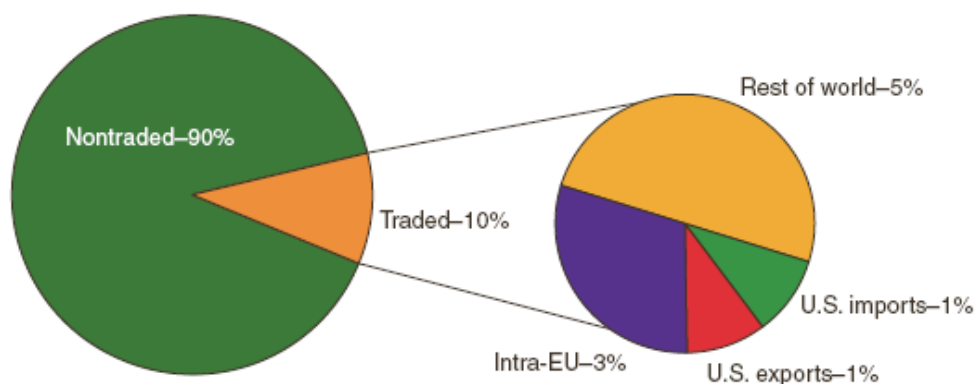
Source: UNIDO, *UNIDO Industrial Statistics Database*.

All these estimations, nevertheless, probably underestimate the size of the food processing sector, particularly in the least developed countries. The database coverage may be less than complete and the informal sector might be only partially represented. Data on employment and wages comprise the same limitations, although some statistics from developed countries suggest the sector employs a relatively important number of workers – around 4.2 million employees in Europe, the first manufacturing sector in terms of employment (in 2002, information available on www.ciaa.be and based on EUROSTAT) and 1.7 million in the US (USDA 2002).¹⁰ Considering information from the US Census Bureau Report (2002), the food sector in the US employed in 2000 1.5 million workers, the third most important sector and 9 percent of total manufacturing employment.

In terms of international trade many important trends emerge. In the first place, only 10 percent of world processed food sales are traded products, which represent around US\$320 billion.

¹⁰ These figures include the beverages sub-sector. According to the USDA (2002), in the US, meat processing was the largest employer in 2000, accounting for 30 percent of workers. Fruit and vegetable processing was second (13 percent), followed by bakery products (12 percent).

Although consumer demand for processed food continues to grow globally, growth in processed food trade has generally stalled since the mid-1990s (Gehlhar and Regmi 2005), while the share of export or import of food in total trade has fallen (using information from the *FAO Statistical Yearbook 2004*, comparing 2002 to 1989-91). According to Athukorala and Jayasuriya (2003), the share of processed food in total exports has dropped globally from 8.5 percent in 1970, to 6.5 percent in 1990 and 5.8 percent in 1999 – when for the authors processed food exports accounted for US\$212.6 billion in developed countries and only US\$81.8 in developing countries.



Source: Trade data from *UN Comtrade 2002*. Global commerce in processed food is approximated from Euromonitor.
Elaboration: Gehlhar and Regmi 2005.

Figure 1. Global processed food sales and traded products 2002

Another significant aspect in relation to processed food trade is the increasing importance of processed agricultural products as opposed to agricultural raw products, a widespread long-run trend observed across regions and countries. The share of processed food in food exports has risen between 1989-1991 and 2002 in all country groups classified by the World Bank in terms of income per capita. Considering the HICs, this share has jumped from 62 percent to 71 percent, while figures for UMICs (53 percent to 64 percent) and LMICs (54 percent to 62 percent) have followed the same upward trend. The performance of LICs has been above average so far, growing from 36 percent in 1989-1991 to only 39 percent in 2002.¹¹ A closer look at the data reveals that grouping countries in terms of levels of income per capita masks a huge heterogeneity across individual performances. In reality, there are a few UMICs and LMICs responsible for a large share of the global food processing exports – highlighting the importance of Argentina, Brazil, Chile, Indonesia, Malaysia, Thailand, and Turkey.

¹¹ Data from the *FAO Statistical Yearbook 2004*. Estimations for 1989-91 do not include the former USSR, which may limit comparability between the both periods in evidence.

Table 4. Share of food and processed food in traded products (in %, of simple average)

	LIC		LMI		UMI		HIC	
	1989-1991	2002	1989-1991	2002	1989-1991	2002	1989-1991	2002
Share of Food in Total Imports	17.4	16.3	13.3	11.7	10.4	9.2	7.4	6.0
Share of Food in Total Exports	19.2	14.2	22.0	13.7	22.8	14.0	6.2	4.6
Share of Processed Food in Total Imports	12.8	11.3	8.3	7.4	6.8	6.4	4.4	3.9
Share of Processed Food in Total Exports	5.2	4.5	14.3	8.9	10.7	8.2	3.7	3.1
Share of Processed Food in Food Imports	72.3	67.7	60.3	63.6	63.3	67.9	61.1	67.3
Share of Processed Food in Food Exports	35.6	38.9	54.5	61.6	53.3	63.6	62.3	71.3

Source: FAO, *FAO Statistical Yearbook 2004*.

Note: Figures for 1989-91 do not include the former USSR.

In the case of food and processed food trade it is important to consider import trends. According to FAO (2004, p.14), imports by developing countries increased fast during the 1970s, grew more slowly during the 1980s and accelerated again throughout the 1990s. This trend held true both for the volume of food imports and for the ratio of food imports to availability for consumption per capita. A developing country food trade surplus of US\$1 billion became a deficit of more than US\$11 billion during the period. In particular, UNCTAD (2006) point out that although food exports constituted 13.6 percent of the least developed countries' total exports in 2000-2003, the overwhelming majority of these countries were net food-importing countries, with food imports averaging almost one fifth of their total imports. Much of this deficit corresponds to processed food imports, given that in developing countries around 65-70 percent of total food imports accounted for processed products in 2002.¹²

According to FAO (2004), the economic performance of individual developing countries played an important role in determining how fast they increased their food imports during the 1990s. Countries that recorded strong economic growth increased food imports more quickly. Rapid growth in the agriculture sector had the opposite effect. Where agricultural value added per capita grew more quickly, food imports generally did not. These trends may suggest that although an export-led strategy should work for selected individual developing countries, domestic variables play an important role in preventing deficit on food trade.

3 Drivers for Growth

3.1 Key External Drivers: "Non-Traditional Exports", Food Processing Trade and Food Industry Transnationalisation

Two very different analytical approaches have converged on the key role (potential or actual) of "non-traditional" food exports, primarily directed to the developed country markets, for growth

¹² Data from the *FAO Statistical Yearbook 2004*.

strategies in developing countries.¹³ One line of analysis is based principally on factor endowments and enabling institutional reforms, with countries, markets and trade as the dominant categories. The second adopts the framework of global value chain (GVC) research where trade between nations gives way to global flows coordinated by lead firms. Here the food processing industry is analyzed in the light of the fragmentation of manufacturing on a global scale and its relocation in developing countries.¹⁴

Both views highlight the relative decline of traditional “raw” commodity exports from developing countries whether they be coffee from Latin America, cocoa from Africa or tea from Asia.¹⁵ However, rather than these commodity chains becoming transformed through “upgrading”, the shift to processing exports to developed countries has occurred around a very different set of “high-value” product categories, with pride of place for fish products, horticulture and poultry. GVC researchers have analyzed these non-traditional food chains through extensive fieldwork particularly focusing on horticulture exports from Africa (Dolan and Humphrey 2001)¹⁶ while the first approach has captured the same tendencies through a reworking of official statistical sources with a preferential focus on South and South East Asia.

Trade data show an enormous increase in the share of manufacturing in total developing country exports, from 27.2 percent in 1970 to 81.6 percent in 1999. The share of processed food in their total agro-food exports has also increased in the same period from 23.8 percent to 52.3 percent (Athukorala and Jayasuriya 2003) and at a faster rate than in the case of developed countries. The implication is that food processing shares the same dynamics as manufacturing and should therefore be the privileged focus of export oriented growth strategies. The authors note at the same time that the share of food processing in total manufactures has not increased.¹⁷ They argue, however, that manufacturing exports tend to have a high import content which is not usually the case for food processing exports and that, as a result, net exports tend to be more positive in the case of processed foodstuffs. Greater demand elasticity when compared with primary products is said to favor processed food exports as a growth strategy given income and consumer trends in developed countries.¹⁸ In addition, the processing stages are assessed to be labor intensive, more so than in the case of non-food agriculture resource-based activities.

Athukorala and others (1998 and 2003) have examined the performance of 37 developing countries and encountered great variation among countries but with higher growth rates being more concentrated in upper-middle-income countries followed by middle-income countries.

¹³ This Report situates itself within the broader GSTI factors outlined in the WDR terms of reference and will not be elaborated on here.

¹⁴ Asia, other than Japan, increased its share of total merchandise exports from 9 percent in 1963 to 18.3 percent in 2001 (Gibbon and Ponte 2005).

¹⁵ See Athukorala and Sen (1998), Rae and Josling (2001), Athukorala and Jayasuriya (2003) for the former and Humphrey (2005), Gibbon and Ponte (2005), Daviron and Ponte (2005), and Fold (2002) for examples of the latter.

¹⁶ Their work focusing on “buyer-driven” GVCs converges with the current focus on the key role of supermarkets in the global restructuring of food supply chains. See Reardon and Berdegué (2001), Coe (2002), Wrigley and Curren (2002).

¹⁷ In fact, the data presented show a decline in the share of processed foods in total exports for the period 1970-1999, more marked in the case of developing countries between 1970-80 and relatively stable from then on (Athukorala and Jayasuriya 2003 p.25).

¹⁸ The authors base themselves here on data from their research on Thailand. Data on real price trends for horticultural exports to the European Union throw doubt on the extent of this elasticity.

Nevertheless, Bangladesh, a large low-income country, had one of the highest growth rates and another five countries in this same category had annual growth rates of over 7 percent. Countries which had high growth rates in processed food exports also tended to have high growth rates in manufacturing exports as a whole which would reinforce the correlation with upper-middle-income developing countries.¹⁹

As regards the change in the composition of food exports, the authors refer to fruits and vegetables, poultry, fish and dairy products. Of the thirteen product categories analyzed, fish and fish products exhibit the most striking growth, increasing from a share of 8.9 percent in 1970 to 30.1 percent of total exports for these categories by 1999. Dairy products, on the other hand, experience a real but modest increase from a very low baseline (0.4 percent to 1.6 percent). The growth in fresh and preserved fruits is only moderate (4.5 percent to 6.8 percent) with considerable oscillation in the 1990s. Fresh and preserved vegetables show an even more modest performance (2.7 percent to 4.8 percent) with a tendency to stagnation in the 1990s. Processed meat products, however, point to a marked decline (18.5 percent to 9.8 percent). Data on poultry is not discriminated here but in the last decade this category has seen a remarkable evolution. From 1995-2002, US and France's share in world trade for poultry declined from 54.9 percent to 42.4 percent whereas Brazil, China and Thailand's combined exports grew from 23 percent to 42.4 percent in the same period (Burch 2005). In addition this trade is largely directed to developing country markets, an issue which will be discussed below. The most significant growth category after fish products is vegetable oils (9.8 percent to 13.6 percent), restricted, however, to a few middle and upper-middle-income countries.²⁰

Analyses which focus on the potential of non-traditional processed food exports have served to highlight the startling increase in the share of fish products and the weight of developing countries in this sector whose trade, at US\$55 billion, is now worth more than the combined value of traditional tropical commodity food and drinks exports (World Bank 2005). In addition, this activity involves many countries in the three continents and often countries not prominent in traditional food exports. On the other hand, the fish sector is in many ways unique and the shift to southern waters corresponds to the depletion of fish stocks, combined with greater regulatory control over fishing and fish-farming practices, in the North (UNEP 2001).

Mayer and others (2003) confirm the strong growth of processed food exports and identify specific product categories, such as fruits and nuts and spices, where developing countries are clearly competitive. Rae and Josling (2003), in their turn, show that developing countries have had an overall stronger annual growth rate in processed food exports from 1985-95 than developed countries, 9.9 percent as against 9.2 percent, and that the increase over the previous decade, where growth was only 2.8, has been much sharper than for developed countries, which already had a growth rate of 6.6 percent. It should be noted that fish products are not included in their calculations, which makes their results even more significant, and that the highest growth rates between 1985-95 are in meats (10.1 percent), dairy products (19.5 percent), processed rice (10.3 percent), beverages and tobacco (19.3 percent) and other foods (11 percent). Rae and

¹⁹ This is true also for the most outstanding low-income country Bangladesh. Exceptions here are Bolivia and Chile.

²⁰ A 1997 UNCTAD report similarly singled out horticulture, fish, meats and, surprisingly, tropical beverages in its study on "Vertical Opportunities in the Food processing Sector in Developing Countries". For a summary account see Wilkinson (2003).

Josling also draw attention to the increasing importance of South-South trade in processed foodstuffs, a development which we will discuss further below.

The WTO Report (2004) gives support to the above analysis although its general conclusions do not discriminate between food and non-food processed agricultural products. It concludes that processed, rather than un- or semi-processed agricultural products have been more dynamic in international trade (both exports and imports) and that this has been true also for “a large majority of developed and developing countries across a wide range of products” (p.19).²¹ It suggests that there is “no strong overall link ...between income levels and the share of processed agricultural products” (p.18), mentioning in particular the performance of Bolivia and Peru. At the same time, it concludes that all countries with a very low share of trade in processed agricultural products are also low or low middle-income countries, as in the cases of Cameroon, Ethiopia, Honduras, Pakistan, Sri Lanka, Uganda and Zimbabwe.²²

A number of recent publications by researchers from ERS/USDA have analyzed global trends in processed foods from the perspective of the US (Regmi and others 2005). They note that processed food sales, at US\$3.2 trillion in 2002, are a key feature of global food markets but that only 10 percent of such products are traded internationally. Intra-EU and US exports/imports account for 5 percent, leaving a further 5 percent for the rest of the world, including Japan. They also argue that: “growth in processed food trade has generally stalled since the mid-1990s” (p 1). While US exports of processed foods were US\$28 billion in 2002 and declining, sales from US affiliates, as a result of FDI, reached US\$150 billion.

Although the food industry shares many of the characteristics of the manufacturing sector as a whole it also has specific features leading to a different dynamic between trade and FDI. Global value chain analysis, which has moved into food by way of non-food “buyer-driven” chains (footwear, apparel and light manufacturing), has tended to privilege an interpretation based on the outsourcing model where the market is in the developed world and the key challenge for developing countries is that of producer “up-grading” within the GVC. Where this model prevails, as in African export horticulture, important research has been conducted into development implications. The globalization of the agrofood system, however, has tended to assume a somewhat different dynamic.

World markets in processed food are very much a function of the locational specificity of the product in question. Where this is high we are dealing with a product category the ERS researchers call “land-based products” and in this case global trade predominates (Regmi and others 2005). Most processed products, however, are highly flexible as regards the use of ingredients and their location depends on other strategic considerations.²³ A number of factors

²¹ With regard to imports China emerges as a notable exception with unprocessed products predominating.

²² The Report examines 15 product categories by degree of processing (unprocessed, semi-processed and processed) which confirm the overall trends. At the same time these categories are not always able to capture the more general notion of value-added, evident notably in its conclusion that Chile’s “outstanding export expansion” (p.19) has not been based on a shift to processed goods. The FAO (2004) on the other hand, argues that developing country share in world exports of processed agricultural products has decreased from 27 percent in 1981-1990 to 25 percent in 1991-2000 largely as a result of the obstacles posed for “upgrading” by market concentration and tariff barriers.

²³ A key strategy for developing countries is precisely to increase the land-based value of their activities through the attribution of a variety of values to the agricultural and primary processing activities. Freshness, environmental

(logistics, product adaptation, market knowledge) favor proximity to the consumer market and it is this that has marked the globalization of the food industry.²⁴ Senauer and Venturini (2004) capture these tendencies in their combined analysis of the “transnationality index (TNI)” and the “network spread index (NSI)”, derived from the UNCTAD, *World Investment Report 2001*. The first of these averages out the ratios of foreign to total assets, foreign sales to total sales and foreign employment to total employment. According to these criteria, the food transnationals, (TNCs) at 78.9 percent in 1999, have the second highest TNI after the media. At the same time, they have the second highest NSI after chemicals/pharmaceuticals which is a ratio of the number of foreign countries in which a TNC is located as a percentage of the number of countries in which it could, potentially, have located.²⁵ Leading food companies, therefore, are typically present in a large number of countries since they are fundamentally consumer market oriented.²⁶ Unilever, Nestlé and PepsiCo are all present in 120-150 countries. Senauer and Venturini (2004) also draw on data from the OECD (2001) which shows that the percentage of foreign production controlled by multinationals in food manufacturing is lower than in most other manufacturing industries. This is consistent with another peculiarity of the food industry – the importance of small and medium domestic firms in the food-processing sector (Wilkinson 2003)

Crossed investments both within Europe and between Europe and the US have been the dominant forms of FDI in food processing while Japanese FDI which had traditionally been that of classical outsourcing also increased its investments in the US and Europe in the 1980s and 1990s, (Wilkinson 2003). Demand in Europe, however, is now stagnating as proportionately less is spent per capita on food and as population stabilization, and even decline, also mark an end to the horizontal expansion of the market.²⁷ The US market exhibits greater dynamism as immigration flows with higher fertility rates lead to a projected population growth of 124 million by the year 2030, slightly more than China in the same period. Japan for its part experienced population decline for the first time in 2005.

Future growth in processed foods will be concentrated in the developing world, which combines high growth, population expansion and rapid urbanization. Already the sales growth figures of the leading players make clear the greater dynamism of developing country markets, although still from a much lower baseline. During the period 1998-2002, Nestlé grew at a rate of 7 percent in Europe, as against 29.8 percent in the Americas, 19.7 percent in Asia, Oceania and Africa and 64 percent in other (non-specified) regions. Unilever for its part, in the same period, had sales growth figures of 3.2 percent in Europe, 47.9 percent in North America, 40.9 percent in Africa, the Middle East and Turkey, 32.3 percent in Asia and the Pacific, and 8.3 percent in Latin

considerations, social justice, traditional “origin” values, and health can all, individually or in various combinations, provide the basis for such strategies.

²⁴ A recent text by Viswanadham (2005) discussing the potential of the Indian food-processing sector is entitled: *Can India be the Bread Basket of the World?* The above considerations would suggest that such an ambition does not take into account the specific characteristics of the food-processing sector.

²⁵ Based on the number of countries having inward stocks of FDI excluding the home country of the TNC.

²⁶ See also the important research of George Anastassopoulos and Ruth Rama (2005) and Selma Tozanli (2005) on geographical dispersion and food industry TNCs. Tozanli draws on the important Agrodata (CIHEAM-IAM) data base on food transnationals.

²⁷ At the same time, shifts in attitudes to health both public and private, and increased longevity in developed countries are leading to changes in consumption patterns in favor of products and services with high symbolic content. In the case of food, this has led to the attribution of a premium to quality factors such as health, appearance, the exotic, together with social, environmental and cultural values.

America (Bolling and Gehlar 2005). Annual average growth in the retail sales of packaged foods in the period 1996-2002 was 3.2 percent in developed countries, 8.1 percent in upper-middle-income, 28.8 percent in lower-middle-income and 12.9 percent in low-income developing countries. Increasingly, therefore, a key driver for the development of the food-processing sector of developing countries is the domestic and regional market and it is to this that we now turn.

3.2 Key Internal Drivers: Population Growth & Urbanization, Institutional Reforms and Foreign Direct Investment

Almost all future growth in the world population is projected to occur in developing countries, calculated to increase by a further 2.5 billion to 9 billion, primarily in Africa and Asia, before stabilization. Most developing countries, however, are in transition to low fertility with important exceptions in Africa. After experiencing a sharp decline in mortality rates, HIV/AIDS has now made this latter a central concern for developing countries. At the same time, rapid population ageing is now occurring in developing countries. Despite these important qualifications with implications both for productive capacity and consumer trends, the dominant reality for the global agrofood system remains the concentration of population growth in developing countries.

At different rhythms, this population growth in developing countries is being accompanied by increasing urbanization. On a world scale, all future net growth is projected to be in urban areas. Half the world's population already lives in urban areas and this figure is projected to increase to 60 percent by 2030. For "less developed regions", according to the UN definition, the urban population was 43.2 percent in 2005 and projected to increase to 57,1 percent by 2030. In Latin America, urbanization has now reached an average of 78 percent higher than that of Europe, whereas in Africa and Asia the figure is 40 percent with a projection of around 55 percent by 2030. Of the 20 cities with over 10 million inhabitants 15 were already in developing countries in 2005. Nevertheless, less than 5 percent of the world's population lives in these very large agglomerations whereas over 20 percent of the population of developing countries lives in cities of less than 500.000 a figure projected to increase slightly to 25 percent by 2015 (UN 2005). The category of "least developed countries" (LDCs) is also experiencing similar tendencies to urbanization but at much lower levels. In this group of countries the urban population was 17 percent in 1980 and this figure is projected to be 31 percent in 2010, (UNCTAD 2006).

Rapid population growth combined with rapid urbanization in developing countries as against population shrinkage and stabilized urbanization in the developed world are powerful incentives, as we noted above, to the transnationalisation of developed country agrofood interests. They are also in principle an equally powerful stimulus to the growth of domestic industrial agrofood systems, consequent on the increasing separation of citizens from direct access to food.²⁸ To the extent that urbanization has been accompanied by the growth of formal employment opportunities this has led to a dietary transition towards convenience foods, animal protein, especially fresh dairy products, and higher consumption of fresh fruit and vegetables. As a result, modern food systems based on packaged food production and supermarket retail outlets are now

²⁸ A variety of factors as we will see may inhibit this development – food imports as a result of trade liberalization and/or availability of hard currency from non-food exports, predominance of informal food supplies in context of urbanization without corresponding formal employment and transport and communications infrastructure.

present in most lower and upper middle-income developing countries according to the World Bank classification.²⁹

While agriculture is still overwhelmingly the main source of livelihood in the LDCs, and while many of these countries have rising absolute numbers in agriculture, the percentage of the labor force in non-agricultural activities, which was 21 percent in 1980, is projected to increase to 35 percent in 2010, (UNCTAD 2006). In addition, the growth rate of the economically active population outside of agriculture is now higher than in agriculture. Nevertheless, differently than in the case of middle-income developing countries, the overwhelming majority of this employment, 70-80 percent, is located in low productivity, informal activities.³⁰ The development of a formal, regulated food processing and distribution system is, in this context, inhibited, and informal food catering and supply systems prevail.³¹

Most developing countries, even the LDCs which are exempt from many of the demands of the WTO, have undergone far-reaching institutional reforms, often under pressure from donor and investment organizations, but also as a response to both domestic and export market stimuli. These have concerned the functioning of the domestic and export market, the legal framework governing foreign investment and the protection of intellectual property. Price controls, marketing boards and intervention stocks have been largely dismantled, tariffs cut and foreign direct investment (FDI) courted. The results have been uneven but the reforms have established a new regulatory framework for domestic market growth and access to export markets.³² There is, however, clearly no direct relation between the above institutional reforms and FDI or new forms of global integration. In addition to the availability of labor and the size and composition of the domestic market, the different commodity chains are often resource specific. This is particularly important when we disaggregate the category of non-traditional exports where the greater part is dedicated to seafood/fish-farming and horticultural products. It is also negatively important in relation to traditional commodities in crisis (cocoa, coffee, cotton) for which there may be no ready substitute.

FDI continues to be concentrated in the Triad countries, with each of these blocs, however, revealing specific spheres of influence in developing country regions. The extensive literature on this theme has explored the complementarity or otherwise of foreign trade and investment, whether viewed in terms of their synergies with investor country exports or subsequent imports (Bolling and Somwaru 2001, Marchant, Manukyan and Koo 2003). The impact of FDI on the host country in terms of rates of growth of GDP, possible crowding (in/out) effects vis-à-vis domestic investment, re-exports and the repatriation of capital has also been extensively debated (Gopinath 2000). As flows to China, Asia and probably soon, India, increase, regional spheres of interest become complemented by more global patterns of investment whether for out-sourcing or host market development. By 1995 over 20 percent of US food processing FDI was already

²⁹ With rapid growth now characterizing the largest developing countries this middle class market numbers no longer in tens but in hundreds of millions. See Senauer and Goetz (2003).

³⁰ In many countries in Africa urbanization has predominantly been the result of push factors be they land scarcity, famine and/or civil wars with no corresponding pull factors with regard to the labor market or infrastructure and services.

³¹ Fiscal motivations may lead to a simple formalization of the informal sector through, for instance, the levying of taxes on food stalls.

³² For a highly critical interpretation of these reforms see Mkandawire (2005).

directed to developing countries other than the Mercosul³³ and the Western hemisphere. The research of Reardon and colleagues suggests that in the long term, the distinction between FDI and trade will begin to lose its analytical power as marketing channels with retail in the driving seat become indifferent to domestic/export distinctions.³⁴

European food processing FDI first moved into the US market in the 1980s stimulated by the weak dollar. Later with the formation of the single market intra-EU FDI came to predominate and in the more recent period the new member and candidate States of the former Soviet Union have attracted major flows of FDI. Europe's four leading food firms, on the other hand, had Eur 67 billion sales outside Europe in 2000, with three of these totaling 305,000 employees outside Europe, and all strongly implanted in developing countries. Many other firms in the "other foods", drinks and dairy categories have solid investments in developing countries. The importance of retail FDI has been highlighted in the work of Reardon and colleagues and European (both continental and British) firms have led the way in Asia, Latin America, and more incipiently in Africa, although the US Wal-Mart is now moving fast into these markets.³⁵

The Japanese strategy of FDI has been geared to off-shore production as its food trade balance makes clear – in 2000 Japan's food imports amounted to US\$50.5 billion as against US\$2.3 exports. In the 1970s Japanese FDI went largely to Australia and East Asia. More recently, in 2000, the US (28 percent) and the EU (45.2 percent) became the principal beneficiaries with East Asia's share declining to 12.4 percent. Strong restrictions on equity participation may explain this difference since East Asia had, at the same time, by far the largest number of Japanese affiliates (212 as against 86 for the US and 65 in the EU). China, which has strongly increased its share of food trade with Japan (from 2.9 percent in 1970 to 12 percent by 2000), alone, has 85 affiliates (RIRDC 2003).

South-South FDI is also becoming an important factor as developing country leading firms adopt more global strategies and as developing countries themselves advance in the direction of regional blocs. Brazilian FDI has been particularly prominent in Latin American countries especially in the drinks sectors (beers and soft drinks) and in more diversified fashion in the case of the Mercosul, accompanied in this case by similar flows of FDI from Argentine and Chilean firms (Belik and dos Santos 2002).³⁶ The Mexican drinks company, FEMSA, has a similarly continental strategy, as also Del Vale the fruit juice firm which has made major investments in Brazil. At the same time, Brazilian firms from the animal protein complex are initiating FDI in Africa and Asia. Indonesian and Thai FDI into neighboring South East Asian countries, South African FDI in Sub-Saharan Africa and the presence of China in the three continents all point to the increasing importance of South-South flows.³⁷ In some cases, South-South is now being accompanied by South-North flows, the most important example of which would be the Mexican

³³ The importance of the Mercosul for US FDI attests not only to the importance of the latter's domestic markets but to the increasing role of this developing country region in the global sourcing of semi-processed exports, particularly but not exclusively, based on the animal protein complex.

³⁴ Such an outcome clearly presupposes not only the unification of standards but also the radical advances in areas such as tariff peaks and escalation.

³⁵ See also GTD USDA.

³⁶ The Brazilian beer and soft drinks firm AMBEV aimed for a 50 percent share in the Latin American market but has now been absorbed, as INBEV, into INTERBREW, the Belgian drinks firm.

³⁷ In 2005 for the first time over half of Brazil's agroindustrial exports went to Southern markets.

food processing industry into the US market (over US\$1 billion by 2000) and investments by Brazilian poultry and meat firms in Europe and fruit juice processing operations in the US.

FDI in food processing is at the same time very concentrated since, with the exception of Japan, the host market presents itself as the prime objective and presupposes therefore a level of effective demand provided by a solid urban middle class. In the case of the US, food-processing FDI to developing countries was concentrated on the following countries in 2002: Mexico (US\$17.1 billion), Brazil (US\$7.6b), China (US\$4.9b), Argentina (US\$3.4b), Venezuela (US\$1.6 b), South Korea (US\$0.7b) and the Philippines (US\$0.7b).

By contrast, total FDI to the now 50 LDCs represents only 1.6 percent of total global flows. This FDI, in addition, is overwhelmingly directed to mineral and oil investments (70 percent) and is internally concentrated with only 10 LDCs receiving 83.6 percent of FDI inflows in 2004 (UNCTAD 2006). Nevertheless, FDI, is an important factor in the promotion of the processing sector in LDCs, especially if we adopt the extended definition suggested at the beginning of this paper which includes non-traditional exports.

In the case of LDCs aid is more important as a source of long-term capital reaching US\$24.9 billion in 2004, 70 percent of total flows. Here again the flows are concentrated both by countries and by objectives, with debt relief and emergency aid responsible for the greater part. Within the shift in aid, however, from infrastructure to grants and technical cooperation, there has been an increase in cooperation projects geared to agrofood development and in many developing countries international cooperation has provided the springboard for new forms of market insertion. Strategies of upgrading from a perspective of value chain analysis have been adopted by many European governments in their cooperation for development programs – most notably DFID in England and GTZ in Germany – an approach promoted also by UNIDO. The increasing importance of NGOs in the promotion of new agrofood practices in developing countries reflects these new cooperation strategies.

FDI, in addition to aid especially in the case of the least developed countries, has therefore become a key component in the globalization of developing country food systems both as this affects their domestic markets and their participation in international trade. Combined with the institutional reforms referred to earlier, this process of transnationalisation has been identified with an increase in product, process and marketing innovation in developing country food systems, together with the development of modern management and logistical practices and a competitive environment leading to greater efficiency and lower costs. Other interpretations would, argue that FDI may have crowded out national firms which themselves would have been forced to develop a similar path given the adoption of deregulation and liberalization measures (Gopinath 2000). In addition, foreign firms may often rely on external supplies of ingredients and equipment breaking down or inhibiting the development of internal linkages. Whatever the merits of these arguments the current competitive environment in many developing countries is forcing a rapid modernization of traditional firms facilitated by the spill over effects of the new practices put into place by the incoming transnationals. The novelty of the current situation is the simultaneous transnationalization of the retail sector in developing countries, which in turn exerts pressure on the whole of the food processing sector and involves a reorganization of vertical relations back through to the primary sector. The reorganization of the dairy sector in the Mercosul countries would be a good example of how the processing sector is now caught up in a

global restructuring of supply chains (Farina and Viegas 2005). This question will be developed in more detail in the next section.

The impact of these drivers on the food-processing sector will be very different for LDCs or countries where a slow growth agricultural economy predominates and for high growth developing countries with strong or weak agricultural sectors. In the case of the former, possibilities exist for the development of non-traditional food exports since these tend to be labor intensive and depend less on imported inputs than other sectors. In fact data on low income countries (LIC) show a surprisingly high percentage of processed food exports in total food exports, which has risen from 17.6 percent in 1970-71 to 43.5 percent in 2000-03 (*www.gbh.ch apud. Simi 2006*). As a complementary or equally important driver a number of authors have pointed to the importance of intra-regional trade both for the development of non-traditional processed foods and agricultural exports and for market creation in the case of non-tradeables in the African context (Yeats 1998, Oyejide 2000).

Food processing in the broad sense adopted in the paper may also become a lever for growth as production is adapted to the demands of urban markets whose consolidation as we have seen is the dominant trend even in these countries. A shift to more dynamic agricultural products from the point of view of demand and products incorporating value-added (classification, packaging, processing) will increase agricultural income. Higher farm income, contrary to earlier arguments associated with Hirschman's classic studies on backward and forward linkages, has a powerful multiplier effect in the form of non-farm purchases, primarily for non-tradeables which generate employment and income within the locality (UNCTAD 2006). A virtuous circle can in this way be created through a reorientation to the urban domestic food market. The family farm model would optimize the benefits from this growth scenario since increased incomes would be more readily transformed into effective demand for local non-tradeables, generating off-farm employment and income, which would in turn strengthen the rural economy.³⁸

In the case of high growth developing countries, whether or not they have a high or low share of agriculture, we are dealing not only with urbanization but also with a rapid dietary transition to animal protein based products, fresh products more generally and convenience foods. This in turn presupposes the consolidation in varying degrees of a modern food processing and distribution sector. Independently, therefore, of export drivers, agriculture is presented with opportunities for diversification in product categories where family farming has traditionally shown itself to be competitive – dairy, poultry, and vegetables. Nevertheless, these stimuli occur in a market environment, characterized by price and quality pressures relayed directly from retail or via the processing/packing industry to farmers. This in its turn imposes a strong selection dynamic on market access both within the family farm sector, between family farming and large-scale commercial farms, and between domestic production as a whole and imports. These questions will be developed at length in section four.

³⁸ Such an approach presupposes the adoption of regulatory measures which encourage a gradual but dynamic improvement in the conditions of food safety, recognizing that the informal sector is currently the mainstay of urban food circuits in many LDCs (Jaffee and others 2003) At the same time it presupposes that measures will be taken to avoid the disruptive impact of “import surges” which can lead to a break down in domestic food supply systems.

4 Constraints to the growth of the agri-processing sector in developing countries

Before considering major constraints to the growth of agri-processing in developing countries it should be clear that all drivers have their downside and imply winners and losers and constraints, as we will see, can also have their upside. In relation to the drivers identified above, the style of metropolitan urbanization also implies concentration and consequent patterns of geographical marginalization reflected in regional and not simply rural out migration. It also involves scale in supply systems, which tend to favor large operators. Similarly, while the institutional reforms have stimulated market mechanisms it is not so clear that they have uniformly promoted growth (Mkandawire 2005). FDI, in its turn, has been highly selective by type of country and highly skewed geographically, generally favoring large, high growth developing countries. Internally it has been accompanied by industrial concentration, especially since FDI has largely been in the form of mergers and acquisition rather than green field investment.³⁹ As for trade flows, new consumer trends in developed countries, which have created the category non-traditional processed food exports, require supplies primarily from water rich environments, whether natural or irrigated.⁴⁰ And finally, while outsourcing has increased the share of total manufacturing located in developing countries, it has been accompanied by the export of precarious working and wage conditions and environmental degradation.

4.1 Crisis in Traditional Export Commodity Chains

The major transformations redefining the world food system since the 1970s have been generically captured in the notion of a shift from a supply to a demand oriented system, leading to buyer driven supply structures. Non-traditional exports, as we have seen, have privileged fresh products, thereby relocating some value-adding activities close to agriculture. This has not been true, however, for traditional developing country export commodities where the same demand trends have concentrated value-added even further at the service end of the chain.

This can be seen most clearly in the coffee supply chain, where producer country value added has tended to be undermined even further as developing country production is reduced to an undifferentiated industrial input.⁴¹ In the case of coffee, institutional reforms led to the collapse of the international coffee regulation regime. This was accompanied by a transfer of stocks from producer countries to the leading roasters, by blending innovations which permitted greater variability in the use of raw material and by the promotion of coffee in new producer nations, such as Viet Nam (Daviron and Ponte 2005). The result was a long historic decline in prices with catastrophic impact on small farmer income in dozens of developing countries, in a commodity chain involving some 25 million farmers worldwide.⁴² On the other hand, value added has been

³⁹ In Africa, outside of mining and oil, portfolio investment has tended to predominate (Mkandawire 2005)

⁴⁰ Short cycle, labor intensive irrigated crops, for their part, tend to lead to a shift from family farming to wage labor commercial farms, a trend noted in various studies. For Africa: Dolan and Humphrey (2002) and Barrientos (2000); for Brazil, Marsden and Cavalcante (2000).

⁴¹ Segmentation along quality lines is partially reversing this trend but these strategies generally favor estate production. For a discussion of de-commodification see Fitter and Kaplinsky (2001). More significant have been initiatives where the value strategy is based on health (organics), environmental (sustainable) or social criteria (Fair Trade), or increasingly on a combination of these three criteria. For an excellent recent discussion of the coffee sector see Daviron and Ponte (2005).

⁴² For LDCs, coffee exports in 2002-2003 equaled US\$427.4 million as against US\$483.9 for vegetables, US\$563.6 for fish and US\$902.2 for crustaceans and mollusks (UNCTAD 2006)

concentrated, above all at the consumer service end in the form of the explosion of coffee-shop culture and domestic express, coffee machines. The world's leading coffee producer, Brazil, is also the second largest consumer of coffee and is now beginning, in a context of rapid transnationalization of the roaster sector, to develop coffee service value-added domestically. Most countries, however, have very small domestic markets and must look rather to the value added promoted by social movements and now acquiring mainstream status.⁴³

Technical quality reasons have been adduced for the concentration of roasting activities in the principal consumer countries and this model is unlikely to change, although high quality niche markets are emerging on the basis of direct links between producers and consumers, especially through the facilities of e-commerce. Instant coffee is processed in producer countries but here scale and technological considerations limit processing to the major global players. With variations, the case of coffee serves as a paradigm for the plight of the traditional commodity export sector and perspectives for agri-processing to which could be added, cotton, cocoa and tea.⁴⁴

4.2 Import Surges

A further constraint emerges if we consider the case of cotton which is crucial to small farmers in various African countries and strategic for export earnings, but whose leading exporters are the US and Brazil. Import surges have been identified (Actionaid 2006) which it is argued have undermined the possibilities for developing the cotton supply chain in African countries and have been the subject of major social campaigns around the WTO negotiations (Oxfam). More generally import surges have been seen to be one of the principal negative consequences of liberalization measures and have been the object of monitoring by FAO.⁴⁵ The UNCTAD 2006 report similarly calls attention to the deleterious effect of import surges. In the wake of the liberalization measures, LDCs as a whole moved from being net food exporters in the 1980s to net food importers in the 1990s, particularly so in the case of African LDCs which have experienced a sharp increase in imports since the end of the 1990s. Import surges have increased over this period and become at the same time more frequent. In addition to primary commodities these also involve processed goods – poultry, tomato paste – which undermine the promotion of domestic food processing industries in these sectors. In the case of poultry, we are in addition dealing with the effects of increasing South-South trade since the poultry in question is largely imported from Brazil.⁴⁶

4.3 Tariff Barriers – Peaks and Escalation

Tariff barriers, particularly tariff peaks and tariff escalation are major factors inhibiting developing country exports of processed products and were a major issue of negotiation in the Doha round. Subsidized exports of processed foods are the obverse of such a policy and similarly

⁴³ Fair Trade now claims to benefit more than 600.000 farming families.

⁴⁴ There is no space here to explore the other traditional commodity chains but for the African context see Gibbon and Ponte (2005), and for cocoa (Fold 2002).

⁴⁵ FAO (2002 *apud* UNCTAD 2006) defines an import surge as a 20 percent positive deviation from a five-year moving average for each commodity/country.

⁴⁶ A decline in subsidies in developed countries may not only lead to increased prices for net importers but may also stimulate the competitive production of “non-trationals” within developed countries (Rae and Josling 2001, van Meijl and van Tongeren 2001, Binswanger 2000).

may undercut efforts to develop both agriculture and food processing. In the case of the European Union, the two types of measures have part of a coherent agrofood policy whose consequences for developing countries are to stimulate the export of non-competitive (tropical) agricultural products and import processed food products from Europe's and their own agriculture (Lemerle and Webber 2004).

According to an FAO study of 16 commodity chains, 12 were the object of tariff escalation, usually at the first phase of processing. Tariff escalation was found to be especially severe for commodity sectors such as meats, sugar, fruit, coffee and cocoa, of particular importance to LDCs. On the other hand, the "Everything but Arms" initiative of the EU, one of five initiatives within its GSP system, has now exempted LDCs from all tariffs, with the exception of sugar and rice which will be included in July and September respectively of 2009.⁴⁷

Other developing countries, however, must continue to face the issue of tariff escalation unresolved in the Doha talks. Fish and oil-based products are an exception here and have gained preferential access to European markets because, among other reasons, the GATT ruled that the CAP could not increase its border protection for "new" products (Lemerle and Webber 2004).

At the same time, it is clear that many other factors help to explain the non-development of food industry sector either for export or import. Among these, pride of place should go to the predominantly oligopolistic market structure of commodity chains on a global scale, which largely defines the nature and location of processing activities. Global value chain analysis has illuminated these processes admirably for a number of traditional commodity chains (Daviron and Ponte 2005, Fold 2002).

4.4 Standards, Non-Tariff Barriers and Bilateral Agreements

Although key issues of tariff barriers remain on the table, the focus of debate has shifted to the importance of the new health, environmental and quality standards governing international and increasingly domestic food trade. In the context of international trade the central issue focuses on the way in which different countries apply the SPS provisions within the framework of the WTO. A *cause celebre* was created with the publication of the Otsuki and others (2001) study whose conclusions seemed to suggest that African countries had been prejudiced to the tune of US\$667 million because of the stringent aflatoxin tolerance levels imposed by the EU in excess of the Codex standard.⁴⁸

A prevalent argument has been that SPS measures which exceed the Codex levels are resorted to as a non-tariff barrier related more to protectionist interests than health concerns. This temptation clearly exists since the SPS provisions allow for more stringent national standards if these are justified by scientific evidence. The obverse may also be true and it is curious that the EU which is so rigorous as regards aflotoxin appears to be much less so in the case of fish products for which it has a huge import demand. In this case, many low-income developing countries have

⁴⁷ Bananas, also initially excluded, were incorporated in January, 2006.

⁴⁸ Athukorala and Jayasuriya (2003) accept Otsuki and others argument. For a detailed rejoinder see Jaffee and Henson (2004).

been recognized as having standards at least equivalent to those of the European Union, thereby benefiting from reduced inspection at the border.⁴⁹

Athukorala and others in the context of their research - *International food safety regulation and processed food exports from developing countries: a comparative study of India and Thailand* – have examined the import detention records published by the US Food and Drugs Administration for fish, fruit and vegetable imports for the years 2001-2002. They found that developing countries were responsible for 6.660 detentions representing 78.4 percent of the total for all countries with a calculated value of US\$1.54 million per detention (Athukorala and Jayasuriya 2003). The reasons for detention, however, tended to be for basic problems of sanitation rather than more demanding standards, a finding that is corroborated by Jaffe and Henson (2004) for the US. These authors also calculate the impact of rejections on world agricultural and food trade, reaching the much lower figure of US\$3.8 billion, somewhat less than 1 percent of total trade, which nevertheless may be highly damaging to those directly affected.⁵⁰ In the European Union, on the other hand, rejection of imports has been more related to “chemical and other contaminants in food, especially veterinary drugs residues, pesticide residues, and mycotoxins.” (Jaffee and Henson 2004 p.19) reflecting the greater concern with regard to food health risks in Europe.

A second issue concerns the SPS formal review and complaints procedures where a growing number of complaints by developing countries are identified while at the same time it is argued that the costs of pursuing such complaints is prohibitive for developing countries. Jaffe and Henson observe, however, that most complaints are registered by traditional exporters (Argentina, Brazil, Chile and Thailand) and that these are concentrated on a small number of product categories and issues. They note also that low-income developing countries make little use of this procedure, although this could be seen to reflect the difficulties involved in negotiating the procedure.

For Athukorala and colleagues a central issue is the poor participation of developing countries in the definition of the rules of the game and the implementation of the SPS as a result of both the costs and the expertise required. Jaffe and Henson, suggest that a more realistic strategy would be to restrict involvement in the implementation of the SPS system to specific key issues facing developing countries and concentrate on adjusting supply chains to the requirement of the systems. They examine in some detail a number of key cases and conclude that those countries and sectors which have focused on adjustment have generally benefited over the long term, and that such adjustment constitute new minimal conditions of entry to which all actors will have to comply. Compliance costs, however, are a major hurdle to such adjustments and should be the focus of cooperation programs.⁵¹ They recognize, on the other hand, that there are clear winners and losers and that small countries, small supply chains and small-scale operators risk being squeezed out.

A further point made by Jaffe and Henson is that many contentious issues are resolved on a bilateral basis without involving the WTO dispute settlement system. This draws attention to a

⁴⁹ The information here, but not the interpretation, is from Jaffee and Henson (2004).

⁵⁰ Jaffee and Henson make the important point that much of this produce eventually finds its way to market although not without incurring extra costs.

⁵¹ UNCTAD, the ITC and the World Bank now have programs of technical assistance.

feature of the current trading system which various authors consider a key constraint for development strategies. In the light of the impasses over multilateral negotiations bilateral agreements between developed and developing countries have proliferated, each with their special interests and conditions. This tendency, it is argued, locks-in developing country into crisscross trade agreements which prejudice not only coherent domestic development strategies but also inhibit regional agreements crucial for acquiring scale in markets and production.

In this section we have focused on public regulatory standards. In practice, however, private voluntary standards are increasingly the major determinants of market access both in international trade and increasingly in domestic markets. This is particularly the case as transnationalization accelerated and food circuits are being drawn into supply chains orchestrated by global retail. We will explore this issue, which has been the subject of a rapidly growing literature, in the following section, which discusses the coordination mechanisms being put into place as a range of new quality and logistical criteria precondition access to food markets. This section will also consider the challenges this poses for SMEs and particularly small farmers and fishers. In addition, it will consider the enabling initiatives being developed in the context of the informal food circuits which are the dominant food supply systems in many LDCs and are a key feature of developing country food systems as a whole.

5 Agri-processing: old and new patterns of supply chain coordination and smallholder participation

The growing dominance of retail where logistical and quality criteria are generally invoked in the name of the consumer has stimulated the greater part of the literature on standards and supply chain coordination. Before retail, however, food processing and trader interests predominated in the definition of quality and here the qualities promoted were justified according to different criteria, the better functioning of impersonal markets in the latter case and the technical requirements of inputs in the former. While, therefore, retail depends for its success on the degree to which it is attuned to consumer trends, the qualities being currently negotiated along the supply chain express rather this hegemonic sector's interests as defined by the competitive environment in which it operates. These are not always shared by consumers (in any case a heterogeneous category or by economic actors whose interests are anchored at different locations in the supply chain, although in the case of the food industry they are very often convergent).

Qualities are the form in which economic actors qualify their interests, which may become accepted as common interests (for instance in the case of specific food safety measures) or exposed as sectoral concerns which may be at variance with those of other actors (GMOs would be an emblematic example here). In addition, different types of actors may propose different solutions to the same common interests (food safety would again be the paradigm case) leading either to the co-existence of different forms of economic coordination or to the imposition of one or other as the norm, with different consequences for the inclusion or exclusion of specific groups of actors. This is particularly relevant in the case of LDCs where the greater part of the food system is currently coordinated in an informal mode. It is also relevant for the range of "origin-valued" products, which are becoming increasingly relevant for developing countries and which share a common antipathy to industrial norms. In this section we will focus on the position of the agri-processing sector in the emerging patterns of supply chain coordination.

In line with our extended definition of agri-processing five different types of interests can be identified: the informal processing sector, artisan production, primary processing, food manufacturing, and food packing activities. The latter as first tier suppliers are strictly controlled by retail; the informal sector may evolve into artisan production which is governed by *sui generis* standards or form the PME segment of the dominant agrofood system where it will adjust variously to industry and retail standards; primary processing and food manufacturing may in their turn form a continuum or develop separate systems of coordination.

The promotion and direct coordination of food supply chains by retail has been most evident in the case of fresh produce and in particular horticulture, which is seen as a key product category for consumer fidelity. This supply chain has been extensively studied by Reardon, Berdegue and others (2002) in wide-ranging research in Latin America, Africa, Asia and Central and Eastern Europe. The results of this research have been subject to review and further exploration in the “Regoverning Markets Project” involving a large number of scholars working on this and similar issues (www.regoverningmarkets.org). Much of the discussion was specific to the analysis of retail and will not be reproduced here (degree of market penetration in different regions and contexts, quality and logistics as entry barriers for small farmers, modernization pressures on traditional circuits).

A complementary line of investigation has been carried out by researchers in the GVC tradition, particularly in the case of horticulture in Africa (Dolan, Humphrey and Harris-Pascal 1999) focusing in their case on the “non-traditional export” axis rather than the transformation of domestic supply circuits. Their study of Gambia, Kenya and Zimbabwe leaves no doubt about the tendencies to concentration and scale both in post-harvest activities and from there back into agriculture. In between the farm and the supermarket the key actors are the importers and exporters, between whom backward and forward integration is not uncommon. From a developing country point of view this supply chain involves a substantial relocation of productive activities, beginning with agriculture but involving all the elements necessary for the functioning of a JIT cold chain. Packhouse activities can extend to labeled and barcoded, ready-packed product combinations. In this process the original small-scale exporters have been displaced and with them also the small-scale farm suppliers who have been largely replaced by own production and big commercial farms. Homegrown,⁵² the largest Kenyan exporter (15 percent of total exports) employed 6.000 workers on its eight farms with exports increasing from 17 tons in 1982 to 12.500 tons in 1997. Small farmer participation in this supply chain was estimated at 6 percent in Zimbabwe and 18 percent in Kenya.

In their study of the Brazilian Northeastern fruit complex of Petrolina, Der Grijp, Cavalcanti and Marsden (2006) evaluate the impact of adjustments to the conditions for EUREPGAP exports to Europe. Here again, small farmers are either pushed out of the export market or hang on via outsourcing to large commercial farms. Those excluded reorient their production to the domestic market where less rigorous quality controls prevail. The large commercial farms, which can include packhouses with the product leaving the farm in cool controlled containers, employ hundreds of workers in strict adherence to official labor legislation standards. These farms are similarly internalizing the environmental norms of the EUREPGAP. A dualist structure would

⁵² Homegrown adopted an aggressive forward integration strategy establishing a joint venture for airline freight and setting up its own dedicated importer in the UK.

appear to be emerging in which smaller farms in relatively unregulated conditions direct their production to domestic circuits while highly regulated, “sustainable” large-scale farming occupies the export market.

In the packhouse horticulture complex globally cheap labor is an important motive for outsourcing in the case of temperate climate crops. At the same time, labor conditions and production practices, although often in an enclave-style environment, benefit from the pressures to retail corporate social responsibility. In addition, logistical and cost considerations have led to the outsourcing of value-added activities demanding sophisticated technical and human inputs. Important spillover effects would, therefore, be expected over time. Calculations from the Africa horticulture study suggest that on average some 25 percent of the value added is realized in the exporting country, which as the authors say clearly illustrates the overall balance of returns which is not significantly different than in the case of the historic trend for traditional commodity exports.

Animal protein products, among which poultry and dairy are pre-eminent, are, as we have seen, a key component of the dietary transition in the context of urbanization in developing countries. A competitive export sector has emerged in the case of poultry, both in South America and in Asia and has increased its share of global trade from 23 percent in 1995 to 42.5 percent in 2002. Developing countries are themselves an important consumer market for internationally traded poultry, and in the case of some African countries such trade has become an obstacle to domestic production. Global trade in dairy products has been dominated by the subsidized exports of developed countries, largely in the form of powdered milk. More recently, South American countries are initiating export strategies in a context of expanding demand in developing countries. The supply chain in both cases is organized by the processing sector with retail primarily exerting indirect pressure via prices. In addition to the quality criteria, which agri-processing promotes for its own interests, quality signals are also transmitted both by retail and by evolving public regulation.

While grains and other commodities were traded on the spot market, the food processing industry quickly adopted contract-style supply chains for a wide range of processing activities. In Latin America these were already largely diffused by the 1970s as two continent-wide studies at the time attested (Vigorito 1978 and Gonzalo Arroyo 1978). Arrangements varied and might be limited only to regular purchases but often also involved the provision of inputs and technical assistance. Studies in this period focused on how contract out-growing allowed the agri-processing firm to define production practices and control productivity without assuming the risks of agricultural production. A similar line of analysis was developed in the 1990s for the African context (Watts 1994). In both cases, agri-processing preference for smallholder contracting was interpreted as a function of the bargaining power and control over production it afforded in contexts of weak scale economies. More recently, different technological packages with scale effects have been identified with selection processes in Brazil pointing to the exclusion of previously integrated smallholders in favor of larger commercial farmers (see Wilkinson 1996 and Farina 2002 for poultry and the dairy sector respectively).⁵³ These developments, however,

⁵³ This was accompanied by strong industrial concentration in the case of the dairy sector, a development noted also for Chile (Dirven 1999).

may be specific to the stage of agrofood development of a country such as Brazil and to the specificities of its agrarian structure.

Recent studies in India have reached very favorable conclusions on the dynamic of contract farming in each of the three product categories considered above – vegetables, milk and poultry (Birthal, Joshi and Gulati 2005). In each case, contract farming showed itself to offer greater returns than market relations, with savings on transaction costs (transport, input supplies) being identified as the key variable.⁵⁴ No evidence was found of the abuse of economic power by the agri-processing companies. On the contrary price rises were seen to have been passed on to producers. A second study specifically on the poultry sector in India also concluded that contract farming showed itself to be more efficient than independent production (Ramaswami, Birthal and Joshi 2005). According to this study, the efficiency gains were largely appropriated by the processor but the farmers benefited from lower risks and higher returns than they could expect from market-based farming.⁵⁵

These very different appreciations of contract farming point to the great difficulty of generalizations since the relative merits of different forms of economic coordination depend on so many variables – the agrarian structure, levels of urbanization, the institutional framework, the stage of development and the functioning of domestic markets and the form of integration in global markets. We have also noted that contract arrangements have been in operation in Latin America at least since the 1970s indicating that the motivations of agri-processing firms may also be quite varied. In some cases it may be a supply strategy to be replaced by markets once production has crossed a critical threshold. In other cases, a strategy to monopolize raw material supplies against possible competition. Yet again it may be the need to tailor inputs to specific industrial requirements. In all these cases, even though only temporarily, the agricultural input acquires a differentiating quality making it the object of specific coordination arrangements. To the extent that qualities of the agricultural product are intrinsic to the transaction value of the food ingredient or final food product, arms length transaction will tend to give way to more contractual arrangements. An important corollary, especially in the context of food markets in developing countries is that “contract farming is not suitable for all products and situations” (Markets and Development Bulletin 2005).

GCV analysis initially based itself on a dual typology of economic coordination which it described as producer or buyer driven commodity (later value) chains. Gibbon (2001) has called attention to the persistence of trader driven commodity chains in the case of cotton and fish and Fold (2002) to bi-polar commodity chains in the case of cocoa, where control is shared between grinders and chocolate manufacturers. In different ways these authors, together with Daviron and Ponte (2005) in the case of coffee, demonstrate the continuing centrality for developing countries of traditional commodity chains which are not readily assimilable to supply chain management logics and where primary processors cum traders are in a dominant position. Nevertheless, these commodity sectors involve by far the larger number of smallholders in many developing countries – some 10 million in the case of cocoa and more than 20 million coffee producers. Cocoa is particularly important for a number of African countries.

⁵⁴ For considerations on contract farming and vertical coordination from a transaction costs perspective see da Silva (2005), and World Bank (2005).

⁵⁵ Viet Nam is also currently promoting contract farming. See *Markets & Development Bulletin*, ADB/MPDF, March 2005.

In stark contrast to modern retail supply systems, the quality of cocoa has declined continuously since deregulation of the cocoa market, a tendency assimilated by the leading processors through the use of advanced processing techniques. At the same time, declining prices have masked an emerging crisis in supply as new lands for cocoa disappear. Awareness of this led to the adoption of a program for the revitalization of traditional cocoa producing regions on the basis of smallholder production in the form of the International Cocoa Initiative, an alliance of the global processing and chocolate manufacturers. Fold (2005) whose account is being followed here, contrasts this situation with the exclusion of smallholders from the horticulture export sector in other African countries. A public scandal relating to the use of child labor has led to the incorporation of labor standards into this initiative and to the involvement of international NGOs.⁵⁶ As a result the objectives of the Initiative now include a certification scheme and Fold concludes his account with the speculation: “These initiatives are perhaps the early phase of a hitherto unseen incorporation of cocoa smallholders in contract farming schemes” (p.236). Civic mobilization around child labor has placed a premium on the quality of labor practices in a commodity where declining product quality was tolerated by the drivers of the chain. The bipolar leadership of this commodity chain must now share the driving seat with international NGOs, an increasingly common occurrence in a food system where quality is no longer determined only endogenously by the traditional economic actors.

NGO’s are even more central to the coordination of supply chains in many developing countries and particularly in LDCs where aid rather than FDI has been seen to play a decisive role. An ideal typical LDC, a net food importer, would include an enclave, high-value food export sector, a small holder, traditional commodity exports sector and a vast informal food sector geared to the domestic market in competition with processed food imports. Coordination of this informal sector focuses on the promotion of value-added activities in the form of food (and non-food) processing for urban markets and eventually exports. Here the issue is not that of contract farming, since the sector is not generally courted by the formal food industry sector, but that of “rural-urban marketing linkages” (Tracey-White 2005).

These linkages are rural driven and heavily dependent on international cooperation and NGOs, in the context of the dismantling or non-existence of public rural extension services. The initiatives tend to be pulverized and niche oriented given the small-scale of the operations, although this is not always so. A case-study review for Africa can be found in *Chain Empowerment: Supporting African Farmers to Develop Markets* (2005). A critical factor in the transformation of the informal sector into value chains is horizontal organization for the achievement of a minimum critical scale. Here the chain strategy often gives way to notions of territory and local production systems particularly important in the Latin American context where they are known by the name, SIALs, (Muchnik and Velarde 2001). One of the key advantages of contract farming as we have seen in the Indian studies is the lowering of transaction costs. Value added strategies undertaken by the informal sector, however, can have very high transaction and learning costs related both to marketing and technological upgrading, which are generally borne by cooperation funds. Nevertheless, they remain a crucial challenge, given the size of this informal sector and its central role in current LDC food systems, which only in the case of resource rich exporters might be offset by imports.

⁵⁶ The International Institute of tropical Agriculture (IITA) a UK-based NGO.

A final form of coordination for which the agri-processing sector is strategic deepens the territorial component noted above and focuses on the development of “origin-based products”. Primarily associated with Southern Europe, especially France and Italy, origin products were first adopted as European policy in 1992 and later incorporated into the TRIPs agreements as Geographical Indications (Sylvander, Barjolle and Arfini, eds. 2000). While they have become contentious issues in trade negotiations, developing countries are increasingly mobilizing their traditions as value added strategies for market access. A review of initiatives in Africa and Latin America is presented by van de Kop, Sautier and Gerz (2006). Origin products in the developing country context have been reinforced by international measures (WIPO, FAO, UNCTAD) for the protection of traditional knowledge now recognized as intellectual property (Correa 2001). Key developing countries are now promoting GIs (Argentina, Brazil, China, India) and an exhaustive review of developing country initiatives is currently underway in the context of the European Union research network SINER-GI coordinated by Bertil Sylvander (www.origin-food.org). GIs pose important challenges since they involve sophisticated forms of collective action and require considerable institutional support. It is likely, in the developing country setting, that these be accompanied by the more informal promotion of value added strategies based on origin products of which at the international level the Slow Food Movement would be an example.

6 Strategy and Policy Proposals

A number of critical strategy and policy issues emerge from the foregoing analysis. In spite of the increasing heterogeneity of the developing world a number of general tendencies can be identified which affect most countries:

6.1 Traditional export commodities

Although there has been some recovery in prices the crisis of the traditional commodity sector persists as also the traditional division of labor between primary exports from developing countries and processing/manufacturing and increasingly services, which are almost exclusively reserved to the major consumer countries. The relocation of processing and manufacturing to developing countries which is occurring in many other branches, seems not to be occurring here, probably due to the capital intensive nature of these activities and the benefits of proximity to final consumption. There is scope for quality segmentation of primary production but this largely favors estate production.

The most promising strategies, which could become the basis of policies for the sector, have been those directed at renegotiating the quality attributes of primary production, in line with social and environmental criteria. In this sense, the Fair Trade social movement has developed a new contractual model, which could serve as the basis for a re-regulation of traditional commodity markets. This would appear to be already occurring in the cocoa sector after child labor scandals threatened the reputations of chocolate manufacturers and certification schemes are being promoted. The collapse of commodity prices with the dismantling of international regulatory mechanisms suggest that some measure of re-regulation would be in order extreme price fluctuations.

6.2 Non-Traditional Exports

For many the solution to the crisis of traditional exports has been the promotion of high value exports in new product categories, which are seen to have greater demand elasticity, are highly labor intensive and have a high net trade surplus. Very positive results have been noted in countries in all three continents and particularly so in the case of South East Asia where this strategy has been enthusiastically adopted.

At the same time, these opportunities tend to be skewed to middle income developing countries, and to be limited to only a few, albeit very dynamic, product categories. In addition they are heavily dependent on hydric resources. Post harvest value-added activities are very often involved but the producer country share of the global value chain is heavily in favor of the consumer country and raises questions about the degree to which this segment will be a source of capital accumulation. With the consolidation of these segments large-scale operations tend to prevail.

The policy implications would similarly point to the need to renegotiate the terms of this productive relocation, which in many cases has severe environmental implications. At the same time, it suggests that while being an important component of development strategies it does not represent an alternative to the crisis of the traditional commodity export sector, reaffirming, therefore, the need for specific policies to address this sector.

6.3 The Economic Power of Global Food Processing/Industry Players

Retail as we have seen has replaced the food processing industry as the hegemonic actor in the global food system. Even the largest firms must now adjust to the buying power of retail and their defensive strategies may even include an orientation to traditional outlets as advances in logistics makes such a strategy feasible. Nevertheless, key foods industry segments, particularly as liberalization measures attracted FDI, have suffered processes of concentration, which have severely weakened the participation of regional, medium-sized firms and cooperatives as global players have come to dominate the dynamic segments.

These firms operate globally but regulatory powers to the extent that they exist are national. There are grounds for considering the re-opening of the UN Center on Transnationals to monitor the global reach of leading firms providing reliable material for Competition Bodies at national level.

The transnationals have shown themselves little vulnerable to national governments and workforces but they have been repeatedly brought to the negotiating table by international NGOs, which have focused on their labor and environmental record. NGOs are now strategic actors in the food system and major sources of innovative policy proposals, as in their current campaign against corporate abuse. The price of TNCs global power is the adoption of corporate social responsibility, and having claimed the moral high ground issues of equity along the value chain should be raised alongside those of quality and adherence to legal entitlements.

6.4 The Situation of LDC/LGA Countries

While the literature identifies many positive initiatives resulting from international cooperation and from FDI in promoting dynamic farmer-market linkages the overall performance of LDCs suggests that the route out of poverty demands a more all-embracing development strategy. Competitive occupation of the domestic urban food market will be a necessary component of such a strategy to the extent that the majority of the population is still occupied in agricultural production, even though non-agricultural activity has now begun to grow more rapidly, albeit fundamentally in the informal sector.

The dynamic of local markets could be increased through trade with neighboring countries providing opportunities for the upgrading of non-tradeables. Post harvest processing and preservation activities are key to the consolidation of rural-urban circuits and these should be developed through the progressive up-grading of currently informal activities, which at present are the mainstay of the urban food system in many LDC/LGA cities.

6.5 Negotiating a Food System Based on Quality Standards

The food system is currently being re-regulated through a mix of private-public standards which establish new entry barriers and constitute the basis also of competitive strategies in the most dynamic sectors of the food system. Standards, however, operate at all levels of the food system and have become the major focus of tensions whether between developed and developing countries or between categories of producers and consumers. Standards have frequently been equated with a specific set of technical requirements, whereas in principle a variety of technical solutions may exist for achieving the same objectives. The technical solutions chosen may represent the interests of specific groups rather than a solution acceptable in principle to all.

This is a particularly acute question when developing policies for the modernization of the informal sector. Public health considerations have often been translated into the requirement for the adoption of industrial norms with severe exclusionary implications for informal processing activities. Technical norms should be elaborated within a broader dynamic enabling policy rather than being the motive for punitive action. Current international guidelines favoring the promotion of SMEs in developing countries favor the adoption of such an approach.

Similar considerations could be made with regard to the “costs of compliance”, whether they be those of organic certification or adaptation to SPS requirements. While it has been convincingly argued that over the long term the benefits accruing to adjustment show themselves to be positive, the welfare implications are not so evident since adjustment, on existing terms, has been accompanied by concentration and exclusion. This points to the need to explore a plurality of solutions, particularly to the extent that alternative proposals offer viable solutions for otherwise likely-to-be-excluded sectors (alternative certifications systems for small farmers, HACCP adapted to artisan and small scale processing activities).

For this reason it is important to go beyond providing an enabling environment for adjustment and strengthen also programs designed to increase the ability of developing countries to participate in the negotiations on SPS and similar measures. It is equally necessary to elaborate procedures which allow developing countries to make full use of the dispute mechanisms.

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