

Supermarkets, Smallholders and Livelihoods Prospects in Selected Asian Countries

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Abstract

Recent literature has drawn attention to the speedy rise of supermarkets in different regions of the developing world and forecast their rapid spread. The emergence of supermarkets has transformed agri-food markets, but at different rates and to a different extent across regions and countries. This transformation is a challenge for smallholders. While the risk of their exclusion is real, it is argued that there are opportunities as well. Indeed, contrary to assertions, the demise of smallholders as a consequence of the growth of supermarkets and dramatic changes in the food supply chain is neither likely nor unavoidable.

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Introduction

Recent literature (Reardon et al. 2003; Reardon, Timmer and Berdegue 2004; Swinnen 2005, 2006; Trail 2006; von Braun et al. 2005) has drawn attention to the speedy rise of supermarkets in different regions of the developing world and forecast their rapid spread. The emergence of supermarkets has transformed agrifood markets, but at different rates and to a different extent across regions and countries. This transformation is a challenge for smallholders.¹ While the risk of the exclusion of smallholders is real, it is argued that there are opportunities as well.

The scheme of this paper is as follows. First, an exposition of the factors that have contributed to the rapid growth of supermarkets is presented. In the second section, some light is thrown on regional, subregional and intercountry diversity in the growth of supermarkets. The third section synthesizes the evidence on the nature of the arrangements that prevail between smallholders and supermarket chains and the constraints that smallholders face. In the fourth section, we carry out an econometric analysis of the prospects for growth in supermarkets; we focus on selected Asian countries. In the fifth and final section, we delineate some guidelines, especially from IFAD's perspective, for facilitating the integration of smallholders in a rapidly transforming food and agricultural sector.

1. Factors Underlying the Spread of Supermarkets

Following Reardon, Timmer and Berdegue (2004), the diffusion of supermarkets in developing countries may be conceptualized as a system of demand by consumers for supermarket services and the supply of supermarket services. The latter depends on investments by supermarket entrepreneurs.

On the demand side, several factors have contributed to the expansion (used synonymously with diffusion) of supermarkets during the past 5-10 years. These include urbanization and the entry of women into the workforce outside the home. The higher workforce participation of women is reflected in a higher opportunity cost of women's time and represents an incentive for women to buy processed food to save on cooking time. In many cases, this incentive is reinforced by lower processed food prices offered by large-scale food manufacturers because of economies of scale in procurement. Higher per capita incomes are another contributory factor. Convenience of shopping, combined with a preference for variety, attractive packaging and new flavours, also manifests itself in stronger demand for supermarket services.² That the size of the middle class is also

¹ In a recent piece, an overly pessimistic scenario is sketched: "The challenges faced by smallholder agriculture should be seen in the context of the general trends that will influence the structure of agricultural production. Namely, the transformation of diets and rising import competition will contribute to the increasing commercialization of the farm sector in developing countries. This is expected to result in larger operational holdings, reduced reliance on nontraded inputs and increased specialization of farming systems." See Stamoulis, Pingali and Shetty (2004), page 12.

² On the preference for variety in food consumption, see Jha, Gaiha and Sharma (2006).

linked closely to this growing demand is corroborated by recent evidence.³ The rapid growth of household refrigeration in the 1990s made it easier to switch from daily to weekly or monthly shopping. Easier access to cars and other forms of transportation facilitated this switch.

The supply of supermarket services has also been the result of several factors. The supply of supermarket services was relatively slow in the early 1990s because it was driven largely by domestic capital. In more recent years, a shift has occurred due to foreign direct investment (FDI). In turn, the latter — mostly from Europe, Japan and the United States — reflected the intense competition in domestic markets and the prospects for higher returns in developing countries. There was a surge of FDI following the partial or full liberalization of the retail sector in many developing countries, for example, the partial liberalization in China in 1992 that culminated in 2004 as a provision of that country's accession to the World Trade Organization; Argentina, Brazil and Mexico in 1994; several African countries in the mid-1990s; Indonesia in 1998; and India in 2000.⁴ Overall, FDI grew five- to tenfold in these regions during the 1990s, and the growth of FDI in food retailing reflected this growth.⁵ Another factor has been the dramatic change in retail procurement logistics technology and inventory management (such as the concept of efficient consumer response). These changes have been key to the centralization of procurement and the consolidation of distribution in order to 'drive costs out of the system' (Reardon, Timmer and Berdegue 2004).⁶ These efficiency gains have led to investments in new stores and, in combination with competition, brought about reductions in food prices.

2. Regional, Subregional and Intercountry Diversity

Some broad patterns are delineated below.⁷

- The first wave of supermarket diffusion occurred in richer countries in Latin America. The second wave followed in East and South-East Asia and Central Europe, and the third in small or poorer countries of Latin America, Asia and Southern and then Eastern Africa. The fourth wave is beginning to affect South Asia and Western Africa.
- In Latin America, supermarkets were originally niche retail markets that had a market share ranging from 10 to 20 per cent of national food retail sales in 1990. By 2000, the share had risen to 50 to 60 per cent of national food retail sales in this region. Ranked by market share, Brazil topped the list, followed by Argentina, Chile, Costa Rica, Colombia and Mexico.

³ For example, see Trail (2006).

⁴ For details, see Reardon, Timmer and Berdegue (2004) and Reardon and Berdegue (2006).

⁵ A recent *McKinsey Report* projects that the freer inflow of FDI will help the retail business to grow from the present US\$180 billion to US\$460 billion to US\$470 billion by 2010 (cited in Chengappa et al. (2007).

⁶ China Resources Enterprise, for example, notes that it is saving 40 per cent on distribution costs by combining modern logistics with centralized distribution.

⁷ This draws upon Reardon, Timmer and Berdegue (2004) and ACNielsen (2006).

- Supermarkets began to mushroom in East and South-East Asia five to seven years after the boom in Latin America, but registered more rapid growth. The average share in the South-East Asian countries of Indonesia, Malaysia and Thailand was 33 per cent, but it was 63 per cent in the East Asian countries of the Republic of Korea and Taiwan. China has recorded the most rapid growth in the world: supermarkets appeared in 1991 and, by 2003, had achieved US\$55 billion in sales and 30 per cent of national urban food retail sales; most impressive is the growth in the sector: 30 to 40 per cent a year.
- Supermarket diffusion has made rapid strides in Central and Eastern Europe as well. This has occurred in three waves. The first wave (in the mid-1990s) emerged in the northern part of the region, where the share of retail food sales ranged from 40 to 50 per cent. The second wave took place in the southern part of the region, where the share averaged 25–30 per cent and was growing rapidly. The third wave has been in Eastern Europe, where the launch was stalled by tardy policy reforms.
- The most recent supermarket take-off has been in Africa, especially Eastern and Southern Africa. With a 55 per cent share of supermarkets in overall food retail sales, South Africa is a leading success story.
- There are large differences across subregions and countries as well. For brevity, we shall confine our observations to subregions in Asia. This draws upon a recent analysis (ACNielsen 2006). Over the period 2003–2005, while Hong Kong and Taiwan maintained their higher levels of supermarket and convenience store penetration, both China and Korea exhibited a strong upward trend. In South-East and South Asia, except for Singapore (with the highest penetration and a gradual increase), India, Indonesia, Malaysia and Viet Nam exhibited a strong rising trend.
- Another striking feature of the diffusion of supermarkets is that it has been far more rapid in processed, dry and packaged foods, such as noodles, milk products and grains, primarily because of economies of scale (relative to traditional retail outlets). The expansion in fresh food markets has been slower, and there is greater variation on account of local habits. A notional estimate of the share of fresh fruit and vegetables in supermarket food retail sales is 50 per cent or lower (Reardon, Timmer and Berdegue 2004). However, interesting to note is the fact that supermarkets in Latin America buy two and a half times more fruits and vegetables from local producers relative to all the exports of produce from Latin America to the rest of the world. This points to the enormous potential of fresh fruit and vegetables for employment and income generation in other regions.
- There is also growing evidence of the domination of supermarkets by multinationals, especially in Latin America. Multinationals account for 70–80 per cent of the stores of the top five chains in this region.⁸ The consolidation has taken place through acquisitions of local chains in Latin America and elsewhere.

⁸ Much of the FDI retail sales derive from multinationals such as Ahold, Carrefour and Wal-Mart (Reardon, Timmer and Berdegue 2004).

For example, during part of 2002, five global retailers (e.g. Ahold, Carrefour, Tesco) spent 6 billion baht (US\$120 million) in Thailand.

- Yet another interesting feature is the penetration of supermarkets into small towns and rural areas. In China, for example, supermarkets are spreading rapidly to small cities, the poorer and more remote north-west and south-west and the interior.⁹

3. Opportunities for and Constraints on Smallholders

It is argued here that the increasing demand for high-value agricultural products is likely to offer new opportunities for smallholders. This is not to suggest that there are no risks of exclusion among smallholders. Indeed, several sources of exclusion have been identified and corroborated.¹⁰ For example, food safety and quality requirements pose difficult problems. Because of these and economies of large-scale procurement, supermarkets often source from large commercial farmers. However, a recent comparative analysis throws valuable light on the conditions under which smallholders may participate in supply chains to supermarkets to enhance their livelihoods (Boselie, Henson and Weatherspoon 2003). Broadly, the roles of both public and private stakeholders need to be redefined.

(a) Nature of Relationships

Boselie, Henson and Weatherspoon (2003) base their findings on five case studies of the supply chain for fresh horticultural produce sold in African and Asian supermarkets or exported to European supermarkets. The salient features are described in table 1.

- In contrast with traditional multilevel and fragmented marketing systems, supermarket supply chains are shorter and more condensed and involve direct delivery to centralized distribution centres. For example, Tops Thailand has reduced the number of its fresh produce suppliers from 250 to 60, while eliminating numerous wholesalers who do not perform value-adding activities. Similarly, Hortico sources directly from 4,000 small producers organized into 20 collection centres that supply a central packing facility.
- Actual product flows are coordinated and planned to a high degree of precision. In the case of Alice, for example, a grower programme determines how much to deliver and when. Large farmers deliver directly to a single distribution centre on a daily basis, while small producers deliver once or twice per week.

⁹ For details, see Reardon, Timmer and Berdegue (2004).

¹⁰ In a recent study, Deshingkar et al. (2003) review the experience with high-value agricultural activities in Andhra Pradesh, a south Indian State. Their assessment of Government-sponsored schemes in horticulture is mixed because, they find, more jobs are being generated relative to cereals, but the people benefiting are large farmers and landless households. They note, however, that new forms of contractual and sharecropping relationships are emerging between private dealers and farmers that might potentially benefit smallholders.

Table 1
Main Characteristics of Selected Case Studies

Company country	Nature of business	Mechanisms for control and compliance	Smallholders involved	Support structures
Alice South Africa	Vegetable producer group supplying domestic supermarkets	Outgrower scheme, EurepGap certification within two years	300-400	Public-private partnerships (Partnerships for Food Industry Development, Agrilink), Pick 'n Pay supermarket chain
Tops Thailand	Domestic supermarket chain	Preferred suppliers, national public certification scheme	500-600	Affiliation with input provider, public-private partnership (KLICT) ^a
Thai Fresh United Thailand	Exotic fruit and vegetable packer and exporter	Contract farming, EurepGap certification	30	Company extension services, public-private partnership (Programme for Cooperation with Emerging Markets)
Hortico Zimbabwe	Vegetable packer and exporter to European supermarkets	Outgrower scheme	4 000	Company extension services, United States Agency for International Development
Homegrown Kenya	Exporter of non-traditional vegetables to European supermarkets	Outgrower scheme, company code of practice	150	Company extension services

Source: Boselie, Henson and Weatherspoon (2003).

Note: a. KLICT = Ketennetwerken, Clusters en Informatie en Communicatie Technologie (Chain Networks, Clusters and Information and Communications Technology).

- Supermarket channels are characterized by specialized logistical facilities and a focus on value added activities. Dedicated collection and distribution centres have been established by Tops, Thai Fresh United, Hortico and Homegrown. These centres grade, wash, pack, label and price the produce as well.
- There are stringent mechanisms for control and compliance. In the case of Homegrown, for example, producers must comply with a written code of practice that specifies equipment, production practices, record-keeping, use of child labour, etc.
- Producers are inspected or are required to join certification schemes (e.g. Tops and Thai Fresh United).
- Supermarkets or their suppliers provide assistance and inputs within the context of weak public infrastructure. Hortico, for example, provides extension and inputs on a credit basis.

A recent evaluation of vertical coordination in high-value food commodities in India (i.e. dairy, poultry and vegetables) lends support to the existence of the participation of smallholders (operating on less than 2 hectares). Based on a sample survey, the shares of smallholders participating in contract farming were 56 per cent (dairy), 32 per cent (poultry) and 37 per cent (vegetables). The important point is that contracts are not limited to the requirement to buy these products at fixed prices. Operating through producer associations and cooperatives, contracting firms, especially milk and vegetable firms, provide inputs, technical advice and credit. Also, there is no evidence of

monopsonistic buying because the prices paid are higher than the prevailing market prices. Finally, there is risk-sharing because the coefficients of variation of the profits of contract farmers are significantly lower than the corresponding coefficients of non-contract farmers (see Birthal, Joshi and Gulati 2007).¹¹

(b) Difficulties

- Many of the supply chain requirements impose prohibitive costs on smallholders, and this results in their exclusion. For example, Homegrown requires that all its suppliers have toilet and washing facilities, a pesticide store, spraying equipment and pesticide-waste disposal facilities. For smallholders with no access to credit, fulfilment of such requirements is impractical. The risks involved in attempting to meet quality standards are also sometimes considerable. In the case of Hortico, for instance, up to 40 per cent of small growers take losses on their first crops of baby corn because of poor yields or unsatisfactory quality. (Although the learning curve is steep, the debts from initial crop failures are repaid after several plantings.)
- If small producers are scattered and infrastructure is weak, collection costs tend to be high. Monitoring and traceability requirements add substantially to these costs. Some suppliers of Thai Fresh United, for example, have been reluctant to invest in the personnel and management infrastructure needed for negotiations with small producers and for monitoring the supply chain. In other cases (e.g. Hortico), the supply chain has been overhauled to integrate small producers.
- Smallholders are often at a disadvantage because of their illiteracy and limited business skills in negotiating with supermarket suppliers. In specific contexts, weak public extension services and input markets, along with limited access to credit, force smallholders to use outdated techniques. There are a few examples of groups of smallholders negotiating with suppliers (Hortico is a case in point), but these are exceptions to the rule.
- What is important, however, is the fact that, despite the disadvantages, smallholders remain involved in the supply chains in India, Kenya, South Africa, Thailand and Zimbabwe.

(c) Comparative Advantages of Smallholders

Several authors, notably Lipton (2006), Boselie, Henson and Weatherspoon (2003), and Swinnen (2006), have argued persuasively that smallholders enjoy several advantages over large commercial farmers and, given *intermediation* and *internalization*, could easily integrate into the emerging supply chains. Intermediation may take a variety of forms whereby public and private agencies cooperate (e.g. food safety standards might be laid down by national governments, and private agencies might help smallholders implement

¹¹ The econometric analysis, however, falls short of checking for a potential selection bias through a two-stage Heckman-type methodology.

them; rural infrastructure might be strengthened by the public sector through private financing; suppliers might help finance the provision of inputs and provide extension).¹² Meanwhile, internalization involves organizations of producers, especially small producers, that negotiate production and marketing arrangements with supermarkets or their suppliers.¹³ Some of the comparative advantages of smallholders are reviewed from this perspective below.

- The first advantage is linked to production technologies and the associated labour requirements. Thai Fresh United, for example, has a portfolio of 140 herbs, spices, vegetables and fruits, each of which has stringent quality requirements. Smallholders, especially women, are able to give the careful attention that such crops require. Moreover, it is in their interest to do so, as these are more crucial to their livelihoods. Small producers supplying Hortico, for instance, had lower rejection rates for certain non-traditional vegetables relative to large farmers. By contrast, when Tops Thailand tried to integrate small producers of vegetables, the initiative failed because the quality specifications were not met.
- If some crops required by supermarkets involve the use of non-mechanized techniques (e.g. pruning and trellising), there may be limited economies of scale in production. In fact, small producers show lower costs because of higher yields or lower capitalization. This offsets higher procurement costs from a larger number of smallholders (a case in point is Thai Fresh United).
- The traditional agro-economic and production practices of smallholders are more amenable to the requirements of supermarkets. In Thailand, Tops has found that smallholders adapt more easily to organic production through crop rotation and selection among resistant varieties.
- Small geographically dispersed units facilitate risk-sharing among supermarket suppliers and greater flexibility in procurement. Hortico, for example, responds to unanticipated demand by drawing upon a large number of small suppliers organized into relatively small collection centres.
- In some cases, given the large numbers of smallholders, supermarket supply chains have no option but to involve smallholders. Besides, suppliers prefer a mix of small and large producers because of the relative ease of enforcement of production and marketing contracts (Swinnen 2006).

In sum, many of the difficulties are not insurmountable, and the gains to both producers and consumers are likely to be substantial.¹⁴

¹² It is reported that, in a survey of Kazakhstan, 81 per cent of producers preferred production contracts because these enabled easier access to credit (Swinnen 2006).

¹³ For illustrative evidence from India, see Birthal, Joshi and Gulati (2007).

¹⁴ There is, in fact, some evidence that compliance costs (e.g. of sanitary and phytosanitary requirements) are low relative to the scale of most export industries. Fixed non-recurrent costs are generally 0.5 to 5.0 per cent of three-to-five year exports, while recurrent costs are 1 to 3 per cent of annual exports (see Umali-Deininger and Sur 2006).

4. Analysis of the Prospects for Growth in Supermarkets

An attempt is made here to build on and extend the analysis in Trail (2006). The econometric analysis incorporates demand-supply factors to explain the variation in supermarket penetration (i.e. the share of supermarkets in retail food sales). The details are given in the annex, and a summary is given below.

In the estimated model, the dependent variable is the share of supermarkets in retail food sales. In light of the discussion above and a review of the rapid growth of supermarkets, the explanatory variables include income per capita, the share of urban population, a measure of the affluence of the upper-middle-income class, the openness of the economy (confined to a measure of the lack of restrictions on FDI flows), lifestyle changes reflected in higher participation rates among women, and a dummy variable that seeks to capture a threshold effect of the share of urban population (i.e. whether the share exceeds 40 per cent of a country's population). More details on the estimation strategy and the results obtained are given in the annex.

Based on the estimated equation in annex table A.2 and projected estimates of income, urbanization and openness, projections of supermarket shares for 2015 have been obtained.

(a) Data

Much of the data are taken from Trail (2006). The sample size is expanded by incorporating estimates of the share of supermarkets in five additional countries, namely, Indonesia, Korea, Malaysia, the Philippines and Thailand.¹⁵ Data on variables not shown in Trail (2006) — the ratio of the income of the top 20 per cent to that of the bottom 20 per cent and participation rates among women for 2002 — are taken from the World Bank's *World Development Indicators 2006*.

(b) Results

The main findings from our econometric analysis are as follows:¹⁶

- Supermarket shares vary with per capita income.
- The shares are also higher in countries where the participation rates among women are higher.
- The greater the inequality (or, by implication, the greater the affluence of middle- and upper-income classes), the higher the supermarket penetration.

¹⁵ For details, see ACNielsen (2006). Comparability with the supermarket shares in Trail (2006) is unlikely because convenience stores are included in the ACNielsen study. However, this is an issue on which an emphatic statement is avoidable since (i) the definitions of supermarkets vary (at least two or three cash registers) and (ii) no firm estimates of discrepancies exist. In any case, similar results are obtained with the smaller sample used by Trail (2006). For details, see the annex.

¹⁶ For details of the econometric analysis, see the annex.

- Urbanization has a non-linear relationship to the share of supermarkets. Although the share of the urban population does not have a significant coefficient, there is a threshold effect. In countries in which the urban population share exceeds 40 per cent, the supermarket share is higher.
- There is a strong positive relationship between the openness index (i.e. the ease of entry of FDI) and the supermarket share. This represents a supply-side variable (i.e. the ability of multinationals to invest large amounts).

(c) *Supermarket Shares in Selected Asian Countries*

A selection of projections is given in table 2. One caveat is necessary here. This has to do with the fact that, since the projections are based on cross-country data in which the dependent variable of supermarkets in total retail sales is subject to definitional and measurement inconsistencies, the (predicted) baseline of supermarket shares is likely to diverge from the actual baseline.¹⁷ For this reason, the baseline should be treated with some caution. Nevertheless, some broad inferences may be drawn from the projections, as follows:

- High rates of growth in supermarket shares are likely in almost all countries selected here. An exception is Pakistan, where the share will rise (relative to the base estimate), but is likely to remain low.
- The most spectacular rise is likely to be in China, followed by Indonesia and Thailand.
- India is likely to triple its share, but the share will remain below 10 per cent. Bangladesh, however, is likely to record a much more rapid growth rate.

Table 2
Supermarket Shares in Selected Asian Countries in 2015

<i>Country</i>	<i>Openness, plus projected income and urbanization^a</i>	<i>Base (predicted) share, 2002</i>
Bangladesh	10	2
Pakistan	4	1
India	7	2
China	62	18
Thailand	48	27
Indonesia	27	14
Philippines	36	27
Malaysia	61	51

a. Projections are based on an extrapolation of recent trends in income and urbanization according to *World Development Indicators 2006*. The effect of openness is based on the assumption that the index takes the maximum value of 10.

¹⁷ The divergence may also arise because our specification, which is constrained by data, does not capture infrastructural constraints on the growth of supermarkets (e.g. transportation and cold storage facilities).

- The Philippines will also achieve a considerably higher share by 2015.
- A somewhat striking result is that, while the growth rate of income will fuel supermarket expansion, the relaxation of restrictions on FDI is likely to play a far more important role.¹⁸ In China, for example, while projected income will raise the supermarket share to 29 per cent, projected income, urbanization and maximum openness (i.e. the index assumes a value of 10) will raise it to 62 per cent. Similarly, in Indonesia, the base share rises from 14 to 16 per cent with projected income in 2015. When this is combined with projected urbanization and maximum openness, the corresponding share rises to 27 per cent. Bangladesh is yet another striking case where the share rises from a low of 2 per cent to 10 per cent, mainly as a consequence of maximum openness.

In sum, the prospects for the expansion of supermarkets are bright in most of the selected Asian countries, including a few of those starting from extremely low shares in 2002. Policy reforms, especially those related to freer flows of FDI, would lead to more rapid growth.¹⁹

5. India's Retail Sector

An overview of India's retail trade sector is given below to illustrate the potential for expansion and the implications for traditional grocery stores and small family enterprises (e.g. *kirana* stores)²⁰.

Retail is the fastest growing sector in the Indian economy. Traditional markets are being transformed into department stores, hypermarkets, supermarkets and speciality stores. However, currently the retail sector is highly fragmented and organised retail is in a nascent stage²¹. More than 80 per cent of the 12 million retail outlets are run as small family businesses, dependent largely on family labour. According to a recent study (Kearney, 2006), an overwhelming proportion of the retail market — valued at \$ 200 billion — is unorganised (about 97 per cent). Organised retail employs roughly 5 lakh persons, as against over 3 crore in unorganised retail. Projections point to a rapid growth of organised retailing — touching \$23 billion by 2010 — at an annual rate of 25–30 per cent. In early 2006, the government allowed foreign companies to own up to 51 per cent

¹⁸ Although urbanization has a significant coefficient (for the dummy variable that allows for a threshold effect), it has a (relatively) minor role in the projections.

¹⁹ In India, FDI is not allowed in retailing. Foreign retailers are, however, allowed to operate through joint ventures where the Indian partner is an export house. Apart from the aberrations linked to the exceptions, there is a plethora of rules and regulations and agencies implementing them. For example, the prevention of food adulteration act of 1954 is implemented by the Ministry of Health; the agricultural produce (grading and marking) act by the Ministry of Rural Development; and laws relating to standards, weights and measurement are under the jurisdiction of the Ministry of Civil Supplies, Consumer Affairs and Public Distribution (BIRTHAL, JOSHI and GULATI 2007).

²⁰ Much of the overview is based on a recent study (Kaur, 2007).

²¹ Organised retailing refers to trading organisations mostly making use of hired labour, and with a large enough turnover to require registration with the tax authorities. These comprise corporate-backed hypermarkets and retail chains, and privately owned large retail businesses. Unorganised retailing, by contrast, includes low cost, low capital, and low turnover family operated shops and vendors (Kaur, 2007).

of a single brand retail company (e.g. Nike). This is likely to result in a flurry of investment. Several foreign players are entering or planning to enter the Indian market to have the first mover advantage. For instance, Wal-Mart has entered the market through a partnership with Bharti Enterprises. Tesco plans to enter the market through a partnership with Home Care Retail Mart Pvt. Ltd.²² Domestic players such as Reliance have ambitious plans — a projected expenditure of \$ 3.4 billion for establishing a chain of 1575 stores in 2007.

As a result, India is on the verge of a retail boom. However, removal of FDI restrictions and expansion of retail outlets have run into stiff opposition. New supermarkets in Uttar Pradesh, Jharkhand, Madhya Pradesh and West Bengal have sparked protests by small traders and political activists. As noted by Scrutton and Gupta (2007), “The closure of 10 Reliance stores by Uttar Pradesh state highlighted the choppy progress of India’s modernisation, beset by political wobbles and fears for the livelihoods of millions of Indians who work in street markets or small shops”. There have also been reports that some states are likely to impose limits on the size and number of stores, limiting economies of scale and profits of retailers. So the prospects of the retail boom materialising are far from certain.

6. Concluding Observations

Our econometric analysis confirms that supermarkets are likely to grow in several countries in the Asia and the Pacific region. Of course, much will depend on capital liberalization, the opening up of the food retail sector and the strengthening of public-private partnerships. As diets and lifestyles change and incomes grow, the demand for supermarket services will increase. In parallel, capital flows and changes in food supply chains will boost the growth of supermarkets. While there is considerable evidence that this would translate into lower food prices for consumers in major cities – and in small towns and in rural areas – and significant spillover effects by freeing up resources, total factor productivity growth and technological advancement (Timmer 2004), some concerns remain about the exclusion of smallholders.²³ Arguably, under certain

²² More specifically, Tesco and Carrefour are eyeing the retail market with keen interest but waiting for a relaxation of FDI restrictions.

²³ A comparative analysis of two districts in Andhra Pradesh, a south Indian State, is revealing. It points to the emergence of new production and marketing arrangements for horticulture that have enabled poorer farmers to cultivate and profit from vegetables, while similar groups in other locations have been prevented from benefiting in the same way. A case in point is the group leasing of land to outsiders from neighbouring states. The outsiders are part of a value chain to urban centres. The land is acquired on a verbal lease, and the outsiders drill a new tube well. The outsiders then grow irrigated crops such as tomatoes, brinjal, chillies, carrots and radishes. They enter into the arrangement on the understanding that it will continue for at least five years so the investment may be recovered. The landowners work as wage labourers on the consolidated farms. The system is thus mutually advantageous. Specifically, landowners get regular wage work, acquire new skills and inherit the irrigation system at the expiration of the leases. While most of the profits go to the outsiders, the outsiders also bear the risk of price fluctuations. This arrangement is beginning to spread rapidly among marginal farmers. For details, see Deshingkar et al. (2003). See also the review of ITC’s e-Choupals and procurement centres by Witsoe (2006). The reduction

conditions that are a feature of food supply chains to supermarkets, smallholders are likely to be at a disadvantage and have actually been excluded from the chains. Either the quality and other requirements (e.g. traceability) are much too stringent for the smallholders, or the smallholders simply lack access to extension, modern inputs and credit.²⁴ However, there are a few success stories as well.

From a strategic perspective, two approaches are distinguishable. One relies on a somewhat narrow interpretation of the role of the State whereby the State concentrates on the provision of public goods (e.g. infrastructure, a legal environment conducive to the enforcement of contracts, food safety standards) and allows competitive markets to do the rest. Burdening markets with the integration of smallholders in the interest of poverty reduction and the expansion of livelihood opportunities may involve heavy trade-offs. A somewhat sceptical view echoing these concerns is elaborated by Timmer (2004), among others. However, following Lipton (2006), Boselie, Henson and Weatherspoon (2003), von Braun et al. (2005), and Witsoe (2006), we take a different and more optimistic view of the integration of smallholders in a rapidly transforming food and agricultural sector in light of the empirical evidence reviewed above.

Some specific concerns that require a redefinition of public-private partnerships are sketched below.²⁵ There is, in fact, a large overlap with IFAD's concerns in the areas of agricultural research, technology and extension, marketing, capacity-building among smallholders and the promotion of producer associations. Specifically, these include the following:

- The conversion of traditional food systems calls for both technological and organizational innovations. Value-adding logistical services, technologies and activities need to be incorporated into existing supply chains.
- Contractual exchanges as an alternative to spot market trading hold considerable potential in the context of agro-industrialization and global sourcing. There are, however, a few specific concerns relating to the transparency, reliability and enforceability of such contracts.²⁶

in transaction costs and the multiple channels of marketing facilitate the integration of smallholders. For illustrative evidence from India, see Birthal, Joshi and Gulati (2007).

²⁴ For example, see the evidence in Witsoe (2006).

²⁵ Central to the United Progressive Alliance, the Government's new agricultural policy in India, is the emphasis on public-private partnerships, whereby the State will provide incentives for private corporations to enter agriculture and agriculture-related industries, as well as to coordinate their relationships with farmers. Specific initiatives with this focus are the National Horticulture Mission, the National Agricultural Innovation Project funded by the World Bank, and the United States-India Agriculture Knowledge Initiative. More specifically, through the United Progressive Alliance, the Government is liberalizing agricultural markets and encouraging contract farming as part of a diversification strategy. Contract farming is essentially a privatized version of Government support for agriculture whereby research, extension, credit, procurement and marketing are provided by private corporations. Efforts are being made to amend State agricultural produce marketing acts to allow corporations to procure directly from farmers, thus bypassing licensed traders. In addition, corporations are allowed to establish and run private markets (see Witsoe 2006).

²⁶ Some recent field evidence from Punjab, a north Indian State, is revealing. When market prices are high and supplies low, firms buy the entire contracted potato crop. At other times, however, there are frequent rejections on grounds of inferior quality. Unavoidably, the produce is sold on the market, and prices fall.

- New variants of contract farming, including mechanisms for technology transfer, risk-sharing and profits, are feasible and might be extended.²⁷
- There is a natural selection among preferred suppliers who are more well equipped to meet the food safety, quality and reliability requirements of supermarket supply chains, but, under certain conditions, extension to a wider and mixed supply base is efficient.
- There is a need to build the capacity of smallholders and the commitment among suppliers through monitoring, compliance and extension.²⁸
- Partnerships must be forged among universities and research institutes and between private corporations and public agencies to assess the supply potential of smallholders with a view to sustaining longer-term supply arrangements.
- Mechanisms that internalize environmental costs into food prices would be beneficial. This is, of course, easier said than done, given the valuation difficulties. Nonetheless, this cannot be a reason for not addressing this concern.
- Competitive market arrangements, the strengthening of communication networks and a conducive policy environment would help achieve greater efficiency and benefits to consumers.²⁹ Given that smallholders have low bargaining power, rent extraction by large corporations cannot be ruled out. Alternative marketing channels would enhance the bargaining power of smallholders, as well as producer associations.³⁰

In conclusion, contrary to assertions, the demise of smallholders as a consequence of the growth of supermarkets and dramatic changes in the food supply chain is neither likely nor unavoidable. The threats to the expansion of the livelihoods of smallholders and other poor segments in rural areas (e.g. agricultural labourers) could be turned into opportunities through mutually beneficial partnerships between supermarkets and smallholders and a macropolicy framework that protects the economic interests of smallholders.

The firms then buy the same produce from the market at a lower price (see Witsoe 2006). In fact, farmers have few options if they are cheated because these contracts are not legally enforceable. Even the model agricultural produce marketing act does not provide for the legal enforceability of such contracts on grounds that are specious.

²⁷ A shift to higher-value agriculture would yield greater returns, but would also entail greater risks for farmers. Futures markets, crop insurance and weather derivatives are some options. That all these options are in their infancy or patchy in coverage in India is well documented. Only 4 per cent of farmers in India, for example, have crop insurance, while 57 per cent have never heard of it (Witsoe 2006).

²⁸ There is a deep-seated distrust of private corporations among the farmers interviewed in Punjab. Many farmers view corporations as no more than sophisticated moneylenders. So, it is necessary to build trust between producers and private corporations (Witsoe 2006).

²⁹ India, for example, has still not opened up its food retail business to FDI. As a result, competition occurs only among domestic firms (e.g. Reliance, Mahindra, ITC, Chambal Agritech).

³⁰ A recent survey in India, for example, found that a mere 2.2 per cent of farming households had a member belonging to a farmers association, while only 4.8 per cent had a member belonging to a self-help group. So, there is a case for the State to promote such organizations (Witsoe 2006).

Annex

Model, Estimation and Results

To supplement the main text, details of the specifications, samples of data and estimation strategy used and the regression results obtained are given below. Some graphs provide validation of the model.

(a) Model Specification and Estimation

In line with the insights of the recent literature, the following specification is used:

$$\text{Log (SShare/100-Sshare)}_i = \alpha + \beta_1 \log \text{Income per capita}_i + \beta_2 \log \text{Urbanization}_i + \beta_3 \log (\text{Ratio of income of top 20 per cent/Ratio of income of bottom 20 per cent})_i + \beta_4 \log \text{Openness}_i + \beta_5 \log \text{Female participation rate}_i + \beta_6 D_1 + \varepsilon_i, \quad (1)$$

where all variables are self-explanatory except the dummy variable. The latter, D_1 , takes the value 1 when the share of the urban population exceeds 40 per cent and 0 otherwise. This allows for a threshold effect of the urbanization index.³¹ Note that the dependent variable takes a logistic form, in contrast with the unrestricted specification of the dependent variable in Trail (2006).

This equation is estimated by the ordinary least squares method. A robust regression is also carried out to avoid the problem of heteroscedasticity.

- The ordinary least squares results are given in table A.1. All explanatory variables (except the log of the share of urban population) have significant coefficients with the positive sign. The overall specification is validated by the F-test of the explanatory power of the model.
- Even though the Breusch-Pagan test does not show heteroscedasticity, it is worthwhile to check the robustness of the results. The robust regression results are given in table A.2. Because these are similar to those in table A.1, no additional comment is necessary.
- Similar results have been obtained with the smaller sample used by Trail (2006), as shown below in tables A.3 and A. 4.

³¹ This calls for additional experimentation. Since this threshold is corroborated by regression analysis, it cannot be rejected as arbitrary.

Table A.1
Determinants of the Share of Supermarkets (Ordinary Least Squares)

Source	SS	df	MS	Number of obs = 46		
Model	84.2674812	6	14.0445802	F(6, 39) =	40.26	
Residual	13.6035896	39	.34880999	Prob > F =	0.0000	
				R-squared =	0.8610	
				Adj R-squared =	0.8396	
				Root MSE =	.5906	
Total	97.8710709	45	2.17491269			

lss	Coef.	Std. Err.	T	P> t	[95% Conf. Interval]	
lper_in	.6854316	.1219148	5.62	0.000	.4388357	.9320276
lurban	-.2623178	.4799627	-0.55	0.588	-1.233134	.7084984
lratio_in	.783286	.192644	4.07	0.000	.3936267	1.172945
lfem_l	2.654487	.7284794	3.64	0.001	1.180998	4.127976
lopen	.7414489	.24744	3.00	0.005	.2409542	1.241944
urban_d40	.9378932	.4411856	2.13	0.040	.045511	1.830275
_cons	-18.45694	2.924353	-6.31	0.000	-24.372	-12.54188

Breusch-Pagan / Cook-Weisberg test for heteroscedasticity
Ho: Constant variance
chi2(1) = 0.17
Prob > chi2 = 0.6815

Table A.2
Determinants of the Share of Supermarkets (Robust Regression)

Robust regression estimates				Number of obs = 46		
				F(6, 39) =	34.04	
				Prob > F =	0.0000	
lss	Coef.	Std. Err.	T	P> t	[95% Conf. Interval]	
lper_in	.6617503	.1307487	5.06	0.000	.397286	.9262146
lurban	-.2162446	.5147408	-0.42	0.677	-1.257406	.8249169
lratio_in	.7993126	.206603	3.87	0.000	.3814186	1.217207
lfem_l	2.891223	.781265	3.70	0.001	1.310966	4.471481
lopen	.6480874	.2653695	2.44	0.019	.1113269	1.184848
urban_d40	1.016829	.4731539	2.15	0.038	.0597844	1.973873
_cons	-19.2433	3.136252	-6.14	0.000	-25.58696	-12.89963

Table A. 3
Determinants of Supermarket Share^a (Ordinary Least Squares)

Source	SS	df	MS	Number of obs = 41		
Model	85.7215062	6	14.2869177	F(6, 34) =	47.67	
Residual	10.1893506	34	.299686782	Prob > F =	0.0000	
Total	95.9108567	40	2.39777142	R-squared =	0.8938	
				Adj R-squared =	0.8750	
				Root MSE =	.54744	

lss	Coef.	Std. Err.	T	P> t	[95% Conf. Interval]	
lper_in	.7338423	.1345549	5.45	0.000	.4603938	1.007291
lurban	.1850394	.5501724	0.34	0.739	-.9330455	1.303124
lratio_in	.8229657	.1993495	4.13	0.000	.4178388	1.228093
lfem_l	2.16683	.7213922	3.00	0.005	.7007845	3.632875
lopen	.7008444	.2400121	2.92	0.006	.2130812	1.188608
urban_d40	.6729496	.4470818	1.51	0.142	-.23563	1.581529
_cons	-18.77163	2.729252	-6.88	0.000	-24.31814	-13.22512

Breusch-Pagan / Cook-Weisberg test for heteroscedasticity
Ho: Constant variance
chi2(1) = 0.09
Prob > chi2 = 0.7672

a. This analysis is based on the smaller sample of Trail (2006). Note that two observations have been deleted because the openness index is 0.

Table A. 4
Determinants of Supermarket Share^a (Robust Regression)

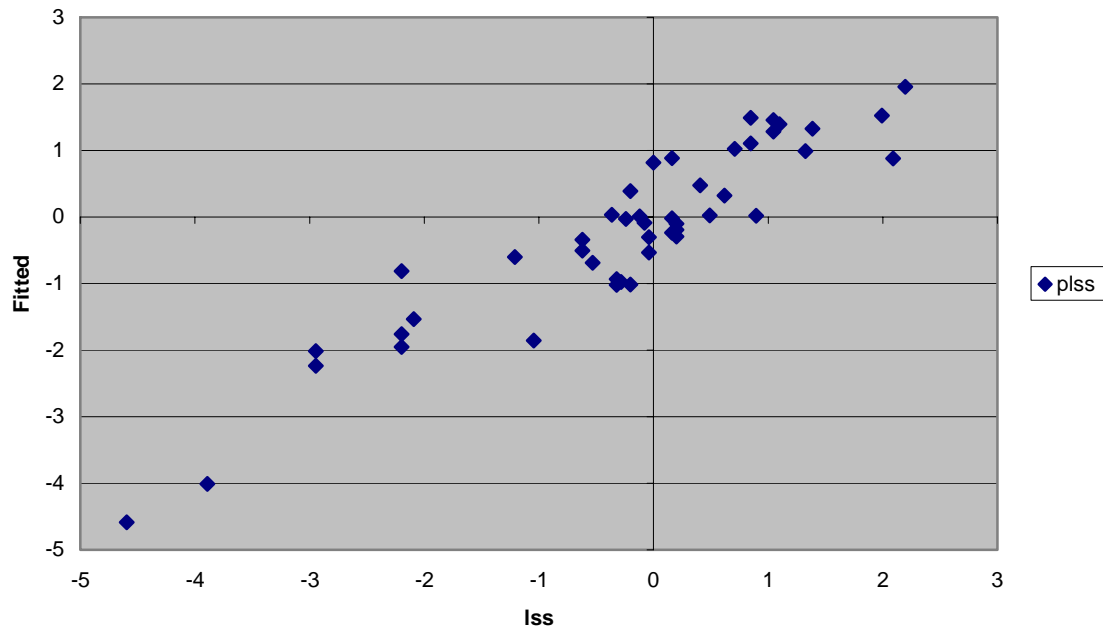
Robust regression estimates				Number of obs = 41		
				F(6, 34) =	40.31	
				Prob > F =	0.0000	

lss	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
lper_in	.6854812	.1429482	4.80	0.000	.3949756	.9759868
lurban	.3091149	.5844909	0.53	0.600	-.8787135	1.496943
lratio_in	.7992624	.2117845	3.77	0.001	.3688646	1.22966
lfem_l	2.38762	.766391	3.12	0.004	.830126	3.945114
lopen	.5763432	.2549835	2.26	0.030	.0581544	1.094532
urban_d40	.7996685	.4749698	1.68	0.101	-.1655862	1.764923
_cons	-19.49688	2.899497	-6.72	0.000	-25.38937	-13.60439

a. This analysis is based on the smaller sample of Trail (2006). Note that two observations have been deleted because the openness index is 0.

Another approach to modelling validation is to look at the closeness of the predicted values of supermarket shares and the actual values. We do so in figure 1. Here, we have plotted the predicted values (as specified in the regression) against the log of supermarket shares. That there is a strong correspondence — the higher the actual value, the higher the predicted value — is corroborated by the graph

Figure A.1
Supermarkets - Fitted Versus Actual Dependent variable



References

- A C Nielsen (2006) *Trends and Insights*. Mumbai: ACNielsen India, 19 October.
- Birthal, P.S., P.K. Joshi and A. Gulati (2007) "Vertical Coordination in High-Value Food Commodities: Implications for Smallholders". In P.K. Joshi, A. Gulati and R. Cummings Jr (eds) *Agricultural Diversification and Smallholders in South Asia*. New Delhi: Academic Foundation.
- Boselie, D., S. Henson and D. Weatherspoon (2003) "Supermarket Procurement Practices in Developing Countries: Redefining the Roles of the Public and Private Sectors". *American Journal of Agricultural Economics* 85(5).
- Chengappa, P.G., L. Achoth, A. Mukherjee, B.M.R. Reddy, P.C. Ravi and V. Dega (2007) "Evolution of Food Retail Chains in India". In P.K. Joshi, A. Gulati and R. Cummings Jr. (eds) *Agricultural Diversification and Smallholders in South Asia*. New Delhi: Academic Foundation.
- Deshingkar, P., U. Kulkarni, L. Rao and S. Rao (2003) "Changing Food Systems in India: Resource Sharing and Marketing Arrangements for Vegetable Production in Andhra Pradesh". *Development Policy Review* 21(5–6).
- Jha, Raghendra, Raghav Gaiha and Anurag Sharma (2006) "On Modelling Variety in Consumption Expenditure on Food". Working paper submitted for publication.
- Kaur, S. (2007) "Crisis of Retail Trade", *Alternative Economic Survey: 2006–2007*, New Delhi, Daanish Publisher.
- Kearney, A. T. (2006) "Emerging Market Priorities for Global Retailers: The 2006 Global Retail Development Index".
- Lipton, M. (2006) "Can Small Farmers Survive, Prosper, or Be the Key Channel to Cut Mass Poverty?". *Journal of Agricultural and Development Economics* 3(1): 58–85.
- Reardon, T., and J. Berdegue (2006) "The Retail-Led Transformation of Agrifood Systems and Its Implications for Development Policies". RIMISP 20th Anniversary Paper, draft, Michigan State University, East Lansing, MI.
- Reardon, T., C.P. Timmer, C. Barrett and J. Berdegue (2003) "The Rise of Supermarkets in Africa, Asia and Latin America". *American Journal of Agricultural Economics* 85(5).
- Reardon, T., C.P. Timmer and J. Berdegue (2004) "The Rapid Rise of Supermarkets in Developing Countries: Induced Organisational, Institutional and Technological Change in Agrifood Systems". *Journal of Agriculture and Development* 1(2).
- Scrutton, A. and S. Gupta (2007) "India Supermarkets Shut, Middle Class Dreams Fade", 24 August, Reuters.
- Stamoulis, K.G., P. Pingali and P. Shetty (2004) "Emerging Challenges for Food and Nutrition Policy in Developing Countries". Special Issue, "Globalization of Food Systems: Impact on Food Security and Nutrition". *Journal of Agriculture and Development* 1(2).
- Swinnen, J.E.M. (ed.) (2005) "The Dynamics of Vertical Coordination in Agrifood Chains in Eastern Europe and Central Asia". Working Paper 42, World Bank, Washington, DC.
- Swinnen, J.E.M. (2006) "Globalization, Privatization and Vertical Coordination in Food Value Chains in Developing and Transition Countries". PowerPoint presentation at the meeting on the *World Development Report 2008*, Berlin, World Bank.
- Timmer, C.P. (2004) "Food Policy in the Era of Supermarkets: What's Different?". *Journal of Agriculture and Development* 1(2).
- Trail, W.B. (2006) "The Rapid Rise of Supermarkets". *Development Policy Review* 24(2).
- Umali-Deininger, D., and M. Sur (2006) "Food Safety in a Globalising World: Opportunities and Challenges for India". Paper presented at the 26th Conference of the International Association of Agricultural Economists, Queensland, Australia, 12 August.
- von Braun, J., A. Gulati, P. Hazell, M.W. Rosegrant and M. Ruel (2005) "Indian Agriculture and Rural Development: Strategic Issues and Reform Options". Unpublished working paper, International Food Policy Research Institute, Washington, DC.
- Witsoe, J. (2006) *India's Second Green Revolution?: The Sociopolitical Implications of Corporate-Led Agricultural Growth*. India in Transition Series. Philadelphia: Center for the Advanced Study of India, University of Pennsylvania.
- World Bank (2006) *World Development Indicators 2006*. Washington, DC: World Bank.