



ANALYSIS

FARM SECTOR

The Limitations of Markets

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Influential multilateral agencies and economists have for long been urging laissez-faire in agriculture that has met with limited success even in the rich countries. This is despite commitments under the WTO. Worse, many poor countries with great agricultural potential have been coaxed to adopt near free trade in agriculture with disastrous results, especially for the poor in these economies. There are fundamental problems in achieving global (or even national) optimality through world trade in agriculture given the immovability of land.

What makes matters difficult is that poor countries start their transformation process with much of their population engaged in agriculture, imposing special requirements on farming. Incomes have to rise in agriculture to overcome poverty and to constitute rising domestic demand for modern manufactures and, therefore, the infant industry argument holds with additional force.

It is interesting to consider the historical experience of agricultural development, the relationship between economic development and agriculture, trade in agriculture, the role of state action, especially in the late industrialization context along with the differences between land endowed and land poor countries.

India's initial state led investments allowed the Revealed Comparative Advantage (RCA) to be "high" and rising, which stabilized with the income growth in the eighties. In the nineties, when high growth prevailed, the RCA tended to decline though not as rapidly as in the East Asian countries typified by either China or Thailand. Structural RCA had, of course, declined earlier as the incomes grew in the eighties. The mid-sixties to the end of the seventies, when Indian growth was much slower than the world average, saw both the structural RCA and the observed RCA rise, helped by the development of minor irrigation over the period. In less than another decade of rapid growth, much over world average growth rates, the logarithm of the RCA of India will fall below zero, which would be the "Corn Law" point in India's transformation. (A Logarithm of a number is the exponent to which another fixed value or the base must be raised to produce that number. A Corn Law is a law that was enacted in the United Kingdom in the 19th century to protect domestic farmers from competition from cheap imports.)

China

In China the “Corn Law” point would well be in the late nineties or the first decade of this century itself, although this is masked by major changes in China’s trade balance on account of fuel, principally oil. Although the observed LNRCA has fallen dramatically with the rapid growth of income over the eighties and the nineties, the structural RCA has remained stable after its rise in the eighties. Clearly the pursuit of export-led growth has resulted in a stupendous increase in manufactured exports, enhancing China’s RCA in manufactured exports allowing its RCA in agriculture to fall, despite the steady aspect of its structural RCA. The structural RCA rose and kept steady due to a fall in the RCA of fuels as China’s imports of fuel ballooned.

Agriculture is marked by certain peculiarities. It is somewhere between being a natural resource and a produced good. It is both a resource and a produced good. Manufacturing is usefully considered as a produced good unconstrained by land. Agriculture is dependent upon land but land is immobile across countries as is labour. With only one of the factors being mobile – namely capital – the trade in agricultural goods alone cannot bring about global level optimality in the use of land to produce agricultural goods.

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However, in a global sense, with free trade in manufactures, manufactures would show a tendency, even if weak, to get located in the least cost places, if there is openness to foreign capital flows too. The need to use technology though would limit the ability of poor countries to house manufacturing in a continually deepening manner without strategic action to create the basis for its workers to engage with modern machinery and processes.

Nations with low-cost oil wells and in quantities far above their needs, for example, would generate vast rents. In manufacturing though, since there are no scarce inputs, rents that are not whittled away are rare. Only the market power resulting from intellectual property and trade secrets would generate “rents”. Even these are constantly under attack through competition. In a more dynamic sense these could (when not excessively protected) be treated as profits necessary to create the



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incentives for innovation.

In fully developed countries, agriculture constitutes between a mere one percent and three percent of the GDP and between two percent and six percent of employment. Hence it is possible for such countries to subsidize their agriculture if agriculture is not competitive without imposing too large a cost on the rest of the economy. Since labour productivity in agriculture is typically lower (sometimes as low as half that of the manufacturing and commercial services sectors), relative to that in the rest of the economy, protecting agriculture also happens to be pro-labour and especially pro-poor, more so when farms are not large.

The so-called aggregate measure of support, which in such countries could range from 30 percent to 80 percent (Japan), is a measure of the total transfers to the sector. The deadweight losses to the country are much less however. This ability and the relatively



low social cost are at the core of the resistance to giving up support of agriculture in rich countries.

In poor countries, with industrialization not having begun or in a nascent stage, agriculture could constitute as much as 50 percent or more of the GDP. More importantly, the proportion of people employed in (more correctly dependent upon) agriculture would constitute around two-thirds of the population. Substantial subsidization of agriculture especially via budgetary measures would be out of question and agriculture may have to be the sector from which resources have to flow out to form the initial capital required for industrialization.

In countries that have created a modern industrial sector but have much of the transformation ahead of them. Agriculture, while constituting a low 25 percent of the economy, could be the source of livelihood for as much as 50 percent or more of the population. Such countries typically have dense populations (and are land scarce). A case in point is India. Late industrializing countries could have substantial dependence upon agriculture because agriculture in these economies is the residual sector holding much of the disguised unemployed that

An examination of the nature of agricultural products over several dimensions – the long lead in production, the perishability in some cases, the storability in others but above all the grouping of many agricultural products into low price and income elasticity – provides insights that can usefully inform the content of state intervention and trade policy, especially from the point of view of a country like India, which is likely to lose its comparative advantage in many agricultural products as incomes rise.

await their engagement in the expanding modern sector via the onset of a Lewisian process of growth.

The agriculture question in these countries is important for an additional reason that the sector should shed labour only at the rate that the modern sector can absorb. This may well mean that agriculture is required to be protected since, being land scarce, it may not be competitive enough globally as incomes rise. The continuation of poverty (slow growth) could of



Land rich middle-income countries would be the most important exporters of agricultural products without subsidization where it would be developed to its full potential

course keep agriculture competitive but that is a competitiveness built on the back of hungry peasants, who have no other opportunities. Capital additions have limited scope especially if the land enhancing investments (irrigation and reclamation) have already taken place.

State failure in land rich poor countries that should be very competitive in agriculture creates another category of economies. Agriculture here should flourish if even a modicum of modern agricultural practice is in place. This category as such exists because war and political strife have prevented investments in agriculture and land improvements from taking place. A lot of the initial investments in agriculture to allow land endowments to be exploited have to be made by the state, being public in character, so that the importance of the state cannot be overstated.

The most important external factor compounding the problem is, of course, the distortion of global agricultural prices caused by the subsidization of

agriculture by rich countries, especially when poor land-endowed countries are persuaded to be open to imports by, inter alia, multilateral institutions, which often have the power to determine policy.

Land rich middle-income countries would be the most important exporters of agricultural products without subsidization. There agriculture would be developed to exploit much of the potential of the land since the incomes are not too high to prohibit all but large firms to operate, unlike in rich land rich economies. Unlike in land scarce middle and low-income countries, too much public and private capital per unit of land is not required to expand output.

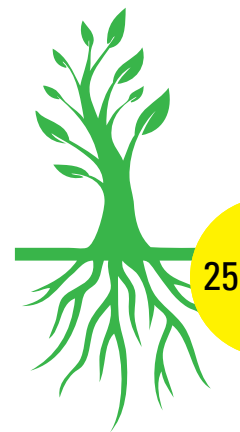
While markets in agriculture are free from fundamental market failure, there are many perversities that need to be recognized. Their impact in poor countries can be severe both on the ultimate producer of agricultural products (typically peasants and small farmers) and on consumers. Much of the perishables in trade



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The immobility of land can only be compensated in part by public investments that enhance land productivity – principally irrigation and land reclamation investments. Land rich countries competing with land poor countries would be able to generate rents that are not eroded if the output from the land rich countries alone is not able to serve global demand. These rents are akin to rents in natural resource products in high demand that accrue to the endowed nation.

Typically a surplus for a country like India would almost inevitably lead to a large price drop (sometimes even to below costs) in the global markets. Similarly, a significant shortfall will lead to large rise in prices. It is only when there is significant buffer stocking in India that international trade can be taken advantage of since the stocking agency has the ability to punish private stockers when they speculatively bid up prices beyond what is considered desirable.



are outputs of agriculture in the broader sense; therefore requiring processing, refrigerating and special care in transportation. This per se is not the problem since many other products could involve significant costs in transportation and storage.

For perishables from agriculture though, they tend to be high and interact with the long lead in production (that at the minimum could range from a season to many years, as in the case of horticulture). The high storage costs act to reduce speculative possibilities and the length of the lead tends to enhance the same. Price elasticities could vary considerably in perishables and those with low price elasticities would be subject to larger volatility than those with high price elasticities. The scope for traders and speculators to extract value would be limited though since speculative storage is expensive.

The advantage in these products, therefore, goes over to the processing, aggregation or retailing segments of the business. Producers and consumers being in very large numbers and intermediaries being few (which is the case in most agricultural products) would allow the intermediary (and in this case the processor-retailer-aggregator) to extract value above costs and thus rents from dominance of the entire value chain.

Consider non-perishables such as food grains, cotton, oilseeds and other fibres, whose storage costs are not too large. If the lead is also large as in the case of most grain and seed crops (unlike storable tubers, cheese), price elasticities are again low, leading to high volatility that would tend to get enhanced due to the intermediary's speculative stocking behaviour. The wholesale trader, rather than other elements in the supply chain, would be able to extract value above costs and hence rents from the production to distribution chain.

Consider the income levels of the ultimate producer. If these are closer to subsistence levels, the ability of the producer to hold on to stocks is limited so that large inter-seasonal variation in farm gate prices result out of the inability to hold out against low prices post harvest vis-à-vis the buyer (aggregator or trader). This would make farmers even more vulnerable to losses when there are sudden increases in production because they could lead to price crashes locally, with the farmer having few mitigating measures such as storing his own output.

The capacity of the local farmer level grain elevators in the USA and Canada, while small relative to the capacities of aggregators, served



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to moderate the inter-seasonal and inter-year variations in prices and hence acted as a check on the ability of intermediaries to extract out too much rent from the chain.

Shifting the attention to the consumer, when the income and price elasticities are not small (flowers, non-basic fruits, cotton, processed fish, exotic grains and seeds) the perversities arising from the structure of the value chain and long lead need not be large. When the income elasticities are small (food grains, pulses), however, the perversities would be damaging at low levels of income. To illustrate the point, consider a poor household in a poor society with about 80 percent share of its income being normally spent on food.


Imagine a 20 percent shortfall in food production over the usual with limited possibilities of imports and no public storage. Given low income and price elasticities, the adjustment would take place at price levels, which would be very high over the current price; even as high as twice the current level. At this price while the well-to-do could still maintain their consumption of food, the poor would necessarily have to reduce their consumption of food; in other words, to starve; to adjust; so that there is “market failure”, since consumption of food cannot be either advanced or postponed (unlike durables or luxuries for instance) and survival itself is now at stake.

Small firms when free of incentive incompatible systems like share-cropping or insecurity of tenure, can greatly expand output even when they are “not profitable” in a capitalist calculation. These aspects of small firms are at the core of the rapid agricultural growth of Korea (1963-1974), China (since the re-peasantization of collectives in 1979) and Taiwan (1960 to 1975) and Japan (1950-1964), and West Bengal after Operation Barga (1983).

Of course, the final solution to this problem is to ensure that all people have incomes high enough to cover such basic consumption many times over. Obviously, therefore, it is this failure more than the ‘failure’ of the trade being able to extract rent out of the chain per se that gives credence to market intervention operations (buffer stocking) as a public activity that can mitigate such risks of starvation. Similarly, a rise of 20 percent in output suddenly could result in steep price fall to hurt the farmer, and the inter-temporal moderation aspect in the activity of the trader would come about only at much value loss to the producer and the consumer.

Consider next global markets in food grains. Wholesale trade would be dominated by players





Two years ago the
Ministry of Agriculture
finally got its act
together and at least its
production estimates of
cotton were brought on
an even keel

Falling IT costs and the development of the world wide web can with state support and with cooperation make a quantum jump in the ability of very small farmers to access such information. The e-choupal, a network of information on prices and practices for farmers initiated and managed by the ITC as part of its extension services to farmers is an important development and could result in similar developments by corporates having an interest in procuring agricultural products. ITC having diversified itself from tobacco to vegetable oil and other products, has found in the e-choupal a way to improve the lot of farmers by reducing the role of middlemen.

from advanced countries simply because they were the early starters and relevant exchanges would be located in early developed countries. Over a long period of evolution, players from these countries would also have consolidated themselves. Another factor is the closeness to large markets that are also willing to pay a premium (typically large and rich countries) for the products of agriculture, especially food.

The earliest of the agricultural surpluses resulting in significant exports arose in the U.K. and USA, France and Germany and local traders from these countries, especially the latter, grew to dominate international trade and exchanges in grain. Late producers and especially those whose comparative advantage is temporary being based on low cost and subsistence labour would not have the basis (not even in the future) for challenging the dominance of global players, in the crucial segment of the value chain namely in global trade and speculation.

As a result the ability of the farmer to gain out of 'free-trade' per se, when unsupported by measures such as public (or cooperative) buffer stocking or state (cooperative) processing and marketing, would be very limited, since the ability of global traders and processors to extract value out of poor country agricultural producers would be considerable. This leakage of value in grain trade is an added reason for state initiated buffer stocking and support of processing, and cooperatives. Hence the urgings of laissez-faire economists that countries like India should give up or greatly reduce buffer stocking and instead use imports and exports to manage inter temporal variations rings hollow.

When there is no shortage as such (averaged over time) buffer stocking would be sustainable



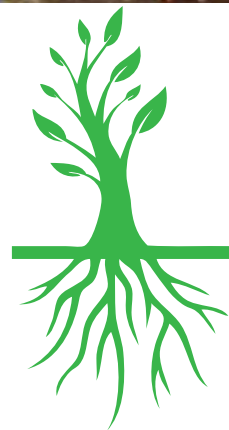
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and even profit earning. It is this economy and the need to bring the collective power of producers in international trade to counter the role of established private players often acting in conjunction with the states of their own countries that has given rise to a significant role for state trading in agricultural products even in countries like Canada.

Even when perishables are involved, the established processor located closer to the markets of developed countries would be in an advantageous position vis-à-vis the producer and the small scale aggregator or packer in Less Developed Countries – particularly those whose comparative advantage in agriculture is newly found – and is more on account of low cost of labour. Amplifying this asymmetry are the phyto-sanitary conditions imposed by rich importing countries, which not only have the effect of protecting domestic high cost producers but also of knocking off considerably the benefit that poor countries could have had out of their exports and indeed of being a factor in the advantage of multinationals (from importing rich countries) vis-à-vis exporting firms from poor countries.



Physical inputs like irrigation development (especially those based in storage) can have positive externalities, sub-additivity of costs and large scale, pushing investments



Many inputs required for agriculture suffer from excludability problems being nearly public in nature – better practices, inoculation of animals, better breeds of plants and animals for instance – so that the state’s support of extension, research and development of new varieties and of better practices is beyond doubt. Countries successful in agriculture have all made these efforts. Since latitude is an import determinant of the specificity of local plants and animals, not all R&D can be borrowed or imported. Therefore, the state’s actions, in directly carrying out R&D and extension and supporting private players, in buying out technology from large MNCs for common and unrestricted use (very much like site licenses for software that educational institutions use) are very critical to the process of agricultural transformation today.

Similarly, other physical inputs like irrigation development (especially those based on storage) can have large positive externalities, sub-additivity of costs and large scale, pushing investments in these areas to either natural monopolies or to suffer appropriability problems. These necessitate state regulation and support if not direct intervention. Other modes of provisioning, such as user participation in development and management, would also have to be coaxed out and engineered by appropriate policy and regulation.

Extraction irrigation, while privately feasible, can lead to subtractability problems especially when ground water resource is scarce, necessitating property rights innovations besides regulation and control. The conjunctive use of water is another factor that renders the provision of unregulated water and irrigation services problematic. Similarly,

investments in watershed to enhance ground water retention, while socially profitable but hardly privately possible, would not happen without state intervention or support. Where enhancement of ground water is critical (when rainfall is bunched for a few days or months in the year) the role of the state even in appropriable extraction based irrigation cannot be overemphasized.

When farm sizes are small there are many additional operations that become problematic and need the state's attention. Thus deep ploughing when farm sizes are not large enough for a tractor to be economically employed may have to be given up (which is a social loss) till such time as markets in tractor hire services develop. Land shaping, land bunding and drainage management investments are fully appropriable only at larger farm sizes so either norms or practices that are socially accepted to maximize such benefits have to emerge or they have to be supported by the state through both rules and institutions (including common property institutions) and extension and investments.

Information tends to be valued when credible and new practices (and crops) carry with them risks. Thus, the mere availability of information that a particular crop, say button mushrooms would be lucrative along with detailed information on the practice alone, would not on that count make many farmers try out button mushrooms. A demonstration would be necessary in most cases and the smaller the farmer the larger is this need. Hence smaller farmers can be expected to experiment with a much lower probability than farmers who operate at a very large scale.

Experimentation in practice on the basis of new information available in land rich economies is realized through a certain degree of asymmetry in farm sizes. This makes the system efficient in a dynamic sense. When even the largest farms are too small to "experiment", which is the case in much of Asia, the role of demonstration to allow for the unfolding of dynamic economies and allocative efficiencies cannot be overemphasized.

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Poverty in societies such as in India, which has overcome its agricultural problem on the supply side can and should be addressed through transfers and such other direct measures. Since the problem in India is really of insufficient demand due to poverty, the logic of parallel distribution and rationing are not justified and need to be given up forthwith. They are the dysfunctional vestige of the past. Thus buffer stocking needs to be completely unbundled from rationing and subsidization, rationing and parallel distribution abolished and subsidization put on the direct (transfer) mode. The resulting savings can be stupendous.

This does not mean that small firms are not functional or that there is a need for farms to merge or consolidate etc. The arguments in favour of small owner managed farms in a situation of large disguised unemployment are many. In such situations, peasant farms that maximize “value added” rather than profits and, therefore, use labour maximally would result as the dominant form of production. They would also have higher yields per unit of land. Both features are socially optimal, given the land scarcity and the labour surplus. Also, small farms in distributing incomes more evenly improve the purchasing power of the population, limitations in which can be a major retardant to industrialization especially in the early expansionary stage of growing out of industrial enclaves.

When the socially correct measure of total yield per geographical hectare is used, small firms are significantly more efficient than large farms in India. (These large farms are themselves small by any international comparison and are more like small household enterprise rather than capitalist enterprise.) However, continuous attempts at redistribution indulged by the Indian state through “programmes” such as the Integrated Rural Development Programme (IRDP), or the Public Distribution Systems (PDS) have had the worst record.

These dimensions of market inadequacies necessitating state intervention in some manner are widely recognized but the dimensions of failure arising out of the nature of agricultural commodities, price and income inelasticity in low income societies are not adequately recognized in much of the current, especially laissez-faire literature. It is to these that we now turn.

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One has seen the need for buffer stocking in poor societies that are still undergoing agricultural transformation. Poor societies could also have a problem of poverty, which would need the poor to be subsidized to access such basic services as primary health care and basic nutrition. In situations marked by food shortages the need for rationing and parallel distribution present themselves. Parallel distribution and rationing, however, have a role only during shortages, while the role of buffer stocking is justified generally given the vast inter year variations in output and the inter-seasonal variations in price against which poor farmers have little recourse.

Shortages in the early stage of agricultural development when it is still an infant industry are quite likely even in land abundant countries. It is only after a certain rather longish period of production, over and above subsistence, that agriculture achieves a degree of stability and is able to deliver an increasing surplus per person. If the standard practice, in response to the shortage, is to use imports, in most cases major damage would be done to the economy and to agricultural development. This is because in most cases agriculture is a livelihood for a large part of the population, whose incomes (already at subsistence) can never rise with such non-

In contrast, dispersed farmers would not be able to pressure governments unless they are politically mobilized as farmers. Vast numbers of small producers at low levels of incomes even in 'large' supplier countries in products like pineapples, bananas, fish, cashew, cacao continue to labour at a pittance with wages no higher than the average in the country, while the value chain from production to final sale in the supermarkets generates vast rents to the processor and dominant players in the chain.

intervention or laissez-faire. Unless manufacture-export led growth can realize vast foreign exchange to import agricultural goods from day one, the management of shortages, through rationing and buffer stocking and in a way that does not destroy the incentive to produce locally, is important.

This can be ensured by "market intervention operations" (MIOs) that integrates imports (and exports) into it. Such strategies are known to have paid rich dividends in India (wheat, rice, milk, and oilseeds) and China (wheat and rice), and was instrumental in these countries reaching self sufficiency with significant productivity gains.



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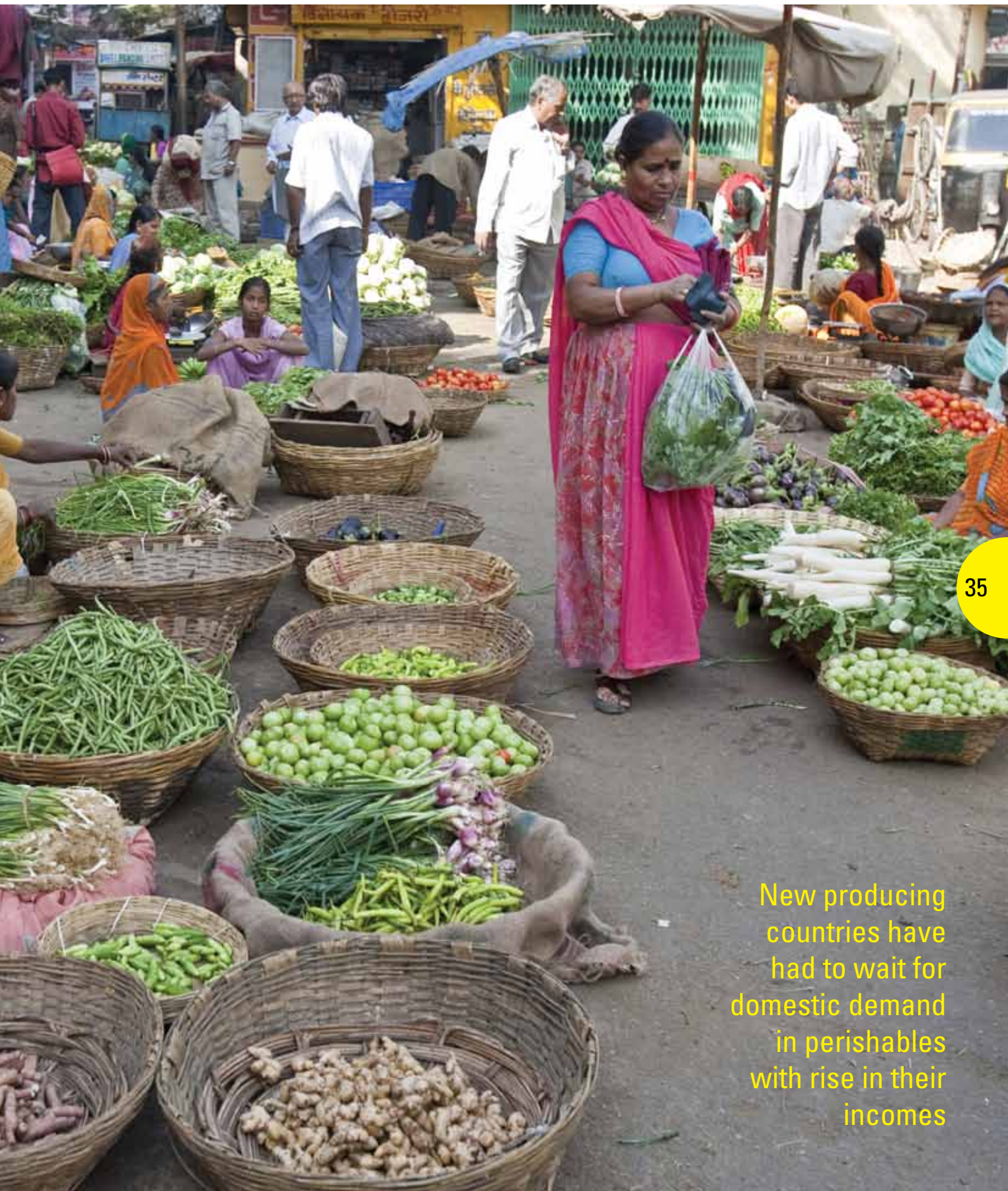
- The role of the state even in surplus countries in buffer stocking to facilitate exports from a position of strength is obvious enough given the discussions in the earlier section. Such intervention when carried out from clearly stated objectives by well-managed state-owned trading enterprises, working without interference in their everyday functioning, can act to effectively curb or counter the market power of global and multinational trading and aggregating firms. This is true in areas like grains, coffee beans, tobacco and such storables; more so those with low price elasticity.
- For the state to effectively intervene in processing related investments is more difficult since here the technicalities, the marketing and retailing interfaces can be daunting for state enterprises. Assuming that they wanted to, would it have been easy for the Central American governments to be able to compete to reduce the monopoly power of the banana MNCs – the trio of Dole, Chiquita Brands International (earlier United Fruit) and Del Monte, all American companies?
- Processing support by the state to counter entrenched multinationals have relevance for poor countries with much agricultural potential in the future. Questions around motivation and state capacity remain though. It is in the land poor manufacturing orientated countries where we see efficient and growth orientated states. Industrialists and importers turned manufacturers can come together to put political pressure to demand state support to industry, and the setting up of public enterprise in areas of market failure to lead developments cannot be overemphasized.

Even a state like India, which has been able to play an important role in non-perishables in their imports, has not been successful with exports. In processed agriculture the parastatal role in MIO has been minimal or entirely absent. Roles in these areas have been purely promotional and regulatory

It is not surprising that there are many examples of land rich poor countries failing to exploit their agricultural potential. Similarly, the very fact that much of the surplus from agriculture can arise in the form of rents, the danger of income inequalities and latifundia kind of development context cannot be ruled out. Hence the importance of land reforms that eliminate overlordship in land.



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New producing countries have had to wait for domestic demand in perishables with rise in their incomes



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as for instance in implementing standards and phyto-sanitary conditions specified by individual importing countries.

Typically, new producing countries have had to wait for domestic demand in perishables with the rise in their incomes before the ability of local processors and marketing firms to retain value could take place. In other words the ability of the domestic economy to retain values is higher for countries with larger domestic markets. Surprisingly, there are as yet no models for either efficient state enterprise, or for public private partnerships in this area. The commodity boards of many African countries typically did not cover perishables and were not particularly successful, even in storables like coffee, sisal, timber and such others.

In India cooperatives have been important in a few cases as for instance in milk and sugarcane to deliver much value to the farmer. Farmers in India, since the green revolution, have much collective political power and have been able to exercise the same in the area of storables, through instituting

state procurement and support prices. In the area of perishables though, despite the political pressure to do something, success has been elusive because the value created by investments in processing in the early days is poorly appropriable so that private capital would be shy. Tasks are sufficiently complex for a parastatal working to simple rules and procedures to contribute in the area of perishables, especially when markets are non-local.

Laissez-faire policies in agriculture when without reference to the stage of development and state failure to compensate for market perversities underlie the disaster that agriculture has been for poor countries with much agricultural potential. ●

This article has been prepared on the basis of a paper, Agriculture: A Perspective from History, the Metrics of Comparative Advantage and Limitations of the Market to Understand the Role of State in a Globalizing World by Sebastian Morris WP. No.2007-02-02, February 2007, which was based on a study of the same name (November 30, 2006) sponsored by the U.K. High Commission in India.

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