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1. Introduction

The Food Corporation of India (FCI) has been a central instrument via which the government of India has sought to achieve its agricultural policy objectives in the food grains sector. With the government's overall aim of promoting food security and self-sufficiency, the FCI has played a key role in achieving these objectives. It has been involved in procuring agricultural output, in distributing food at low prices to the most vulnerable, in managing stocks, in allocating food grains between surplus and deficit regions in India and in maintaining (almost total) control over imports and exports of food grains. With these wide-ranging responsibilities, the FCI has been an integral feature of Indian agricultural policy for over forty years.

However, in recent years pressure for policy reform has intensified and, with it, debate about the future of the FCI. Some of these pressures are external. Pressure to increase market access and to avoid unfair export policies has led to a reduction in trade barriers, while the use of the FCI as a potentially trade-distorting state trading enterprise has been called into question. Domestically, mounting costs associated with the budgetary costs of the food subsidy, the accumulation of significant stocks of rice and wheat and the costs of stock-disposal through, for example, export subsidies, as well as the well-documented inefficiency of the FCI, have all called into question the future and appropriate role of the FCI.

Reforms of agricultural policy could involve several alternative and appropriately targeted policies. Feasible alternatives to existing instruments include, for example, food stamps targeted at the poor, the decentralisation of policy to the state level, and

the use of deficiency payments to provide a floor price for farmers (see Jha *et al.*, 2007 for an overview of alternative reform options). A key feature of this debate is the desirability of de-regulating grain marketing in India, an assessment of which requires analysing the future status of the FCI and the potential net benefits of increasing the role of the private sector. Promoting competition will not only have an effect on the domestic market via procurement and distribution, but it will also affect exports and imports to the extent that the FCI's dominant role over trade will also be revised. However, in the current situation of higher and more volatile food prices, the role of the FCI in moderating income risk for farmers and the price risk faced by consumers is important and it cannot be overlooked in any economic analysis of potential reforms of agricultural policy and in the debate on the de-regulation of state trading enterprises more specifically.

In this paper, we address some of the issues associated with the de-regulation of STEs. While there has been some commentary on the potential role of the private sector once parastatals are reformed (see, for example, Rashid *et al.*, 2005 and Ganesh-Kumar *et al.*, 2007), a distinguishing feature of our approach is that we deal with the issue of de-regulation in a formal, albeit risk-free, context. Specifically, we start with a formal model of a state trading enterprise that dominates trade (either exports or imports) as well as the domestic market via distribution and procurement, and then we explore the effects of increasing the role of the private sector.

One of the advantages of this approach is that we can deal with de-regulation in a piecemeal fashion which, arguably, is more likely to reflect the reality of the de-regulation process in many countries. For example, de-regulation of the state

enterprise may involve increasing the role of the private sector in procurement and distribution only, while maintaining the monopoly control over international trade in the hands of the state trading enterprise. Alternatively, governments may replace some of functions of the state trading enterprise with other policy instruments, for example, tariffs or producer price support. As such, de-regulation may be a complex process that may not result in the first-best case of a competitive market with no government intervention. Rather, the de-regulation process may be murkier: increased competition may not guarantee improved welfare when de-regulation moves from one second-best outcome to another. To highlight these issues, we draw on related work-in-progress on de-regulation of state trading with reference to Indonesia, the relevance of this work being not only the key insights that arise but also the potential applicability of the framework used in that country for assessing de-regulation in India. The main insight that arises from this work is that partial de-regulation may not necessarily be welfare enhancing overall but, nevertheless, will result in significant distributional effects contingent upon the precise nature of the de-regulation process.

We also report results relating to the de-regulation of the FCI. At the present time, these results carry a ‘health warning’ in that they are highly tentative and require considerable work on both the specific characterisation of the market and the data used. Nevertheless, taken together with the Indonesian example, the results highlight the potential usefulness of the framework for addressing the issue of de-regulation as the framework is sufficiently flexible to deal with a menu of options relating to partial reforms of state trading (arguably the more realistic path to reform) and, in so doing, identify which aspects of de-regulation will matter most. This framework can form

the basis for a more detailed exploration of the de-regulation debate in India in the future.

Of course, any current discussion on policy reform cannot ignore recent developments in commodity markets. Near record highs (in real terms) of commodity prices caused by a complex range of factors (including, *inter alia*, rising incomes in China and India, biofuel policies in the USA and Europe, drought in Australia, the depreciation of the US dollar and low inventories) ought, arguably, to have changed the environment in which agricultural policy reform is discussed. Yet the on-going negotiations on agriculture in the World Trade Organization (WTO) appear not to have altered fundamentally to reflect the new realities¹.

The recent boom in commodity markets has resulted in many food importing countries facing severe shortages, with some witnessing food riots as the prices of staple foods have increased dramatically over a short period. The FAO is currently reporting 37 countries as 'crisis hit' (FAO, 2008). For some key agricultural exporters (notably Argentina) but also India, governments have responded to the commodity boom by imposing export taxes. More generally, almost every country (whether developed or developing) is currently facing considerable food price inflation which, in turn, has considerable macroeconomic consequences, as well as causing specific problems in dealing with the most vulnerable, i.e., the poorest who spend a larger share of their budget on food consumption. The response of the Indian government to this upheaval has been to suspend futures trading on the grounds that speculators are hoarding foodstuffs and driving up prices.

¹ Rather than seeing high world prices as an opportunity to reform agricultural policies and reduce the reliance on government support, there is some suggestion that despite the current boom, farmers are not keen to give up the insurance that government policies provide (*Financial Times*, 14 May, 2008).

The significant rise in commodity prices against the background of low real prices for many commodities over the 1990s and up to the mid-2000s serves to remind policy-makers and researchers of the volatile nature of commodity markets. While domestic government policies and trade policies have, as part of their rationale, the amelioration of the impact of risk on domestic producers and consumers and thereby the promotion of food security, policy reform may increase the exposure of farmers and consumers to potentially volatile world markets². To a significant extent, recognising the impact of commodity price fluctuations has been missing in recent and highly-influential work on trade and poverty (see, for example, Hertel and Winters, 2006). Specifically, the role of trade liberalisation as an aid to reducing poverty generally works through the specialisation and income effects associated with the standard gains from trade. No mention of exposure to risk that may accompany policy reforms is addressed. In a similar vein, in an FAO study on trade and food security (FAO, 2003), the impact of risk does not feature at all. Yet, when there is concern about issues of food security and livelihood security, how markets deal with risk and what may be the nature of risk post-reform, is clearly important.

In this paper, therefore, we also highlight the issue of market reforms in the context of risk. We do not provide detailed answers to this issue. Instead, we pose two questions to which answers may be forthcoming from further research. First, in the presence of volatile spot markets, of aversion to risk and of incomplete markets for risk sharing, should the arguments for trade reform and the types of policy instruments used to achieve reform be changed? And second, does the inter-relationship between market

² Of course, trade openness could reduce the overall risk associated with commodity markets at the same time as increasing domestic exposure to fluctuating commodity prices.

structure and de-regulation need to be re-assessed where considerations of risk are taken into account?

The paper is organised as follows. In Section 2, we summarise recent research on the trade distorting aspects of state trading enterprises, briefly highlighting the factors on which the trade distortions depend. We relate this discussion to recent results on the FCI which we have presented elsewhere (see McCorrison and MacLaren, 2006). This framework forms the basis for the discussion presented in Section 3 where we turn attention away from the trade distorting aspects of state trading to the more general issue of de-regulation, specifically increasing the role of the private sector in procurement, trade and distribution. We draw on our recent research on Indonesia to highlight the nature of the issues involved. This application can serve as a platform for discussing future developments in the study of de-regulation in India in relation to which we provide some tentative results. Given that de-regulation will result in some combination of trade reform and increased competition, in Section 4, we pose a series of questions about how incorporating risk may matter in influencing the research agenda on de-regulation. In Section 5, we summarise and conclude.

2. Trade Distorting State Trading Enterprises and the FCI

In previous papers, we have analysed the issue of trade distorting state trading enterprises both generally (see McCorrison and MacLaren, 2005 and 2007a) and in the context of the Food Corporation of India (McCorrison and MacLaren, 2006). Recall briefly the main issues that were addressed.

The Food Corporation of India has been an integral part of the government of India's agricultural policy since 1965 when it was established. Reflecting the inward-orientated, state-led development strategy pursued since independence, agricultural markets in India have been highly regulated with the overall aim of achieving self-sufficiency and maintaining food security. In a domestic context, this has involved a plethora of laws and institutions including, most notably, the Food Corporation of India, which procures domestic output at government-supported prices and which distributes staple food products through the Public Distribution System (now refocused as the Targeted Public Distribution System) that sells government-procured grain at subsidised prices through 'fair-price' shops.

The combination of potentially-conflicting government objectives and the extensive role for the FCI has resulted in a complex marketing system. The domestic market is segmented between a public distribution system at state controlled prices that is coordinated by the Food Corporation of India which co-exists with the private sector in the marketing of agricultural products. In addition, both the Food Corporation of India and the private sector are involved in the procurement of agricultural commodities. In order to sustain the government's domestic objectives of food security for the poor and guaranteed prices for farmers, trade must also be managed. A key part of this management of agricultural markets has been extensive trade policy intervention through tariffs, quantitative restraints and the use of state trading enterprises to manage trade and domestic markets across a wide range of agricultural commodities. While there is a relatively marginal role for private traders to export grains, the management of imports remains dominated by the FCI over which it has complete control. Given the need to support farmers at the Minimum Support Price,

the FCI, from time to time, has accumulated significant stocks of rice and wheat the excess of which it has exported.

Our work to date has focussed on addressing the trade distorting impact of state trading enterprises, both on exports and imports and has drawn on the theoretical models as outlined in McCorrison and MacLaren (2005, 2007a). What have been the main insights that have arisen from this research? First, the specific nature of exclusive rights matter³: i.e., in what markets does the state enterprise exercise control and what is the role, if any, of the private sector. Second, the link with the domestic market is key to establishing the extent to which state trading enterprises can distort world markets, in part through market segmentation. Third, the overall objectives of government policy matter. State trading enterprises do not necessarily maximise profits. They are an instrument of government policy and their objectives, therefore, will reflect the bias of that policy. Fourth, the competitive nature of the benchmark used to compare the impact of the state trading enterprise also matters. Finally, there are a range of other factors that can influence the magnitude of the trade distorting equivalent measure, for example, the relatively (in)efficiency of the state trading enterprise compared with private sector (and profit maximising) firms and the existence and concurrent use of other government policy instruments.

Applying this methodology to a range of state trading enterprises in importing and exporting countries, we have shown that state trading is trade distorting and that the magnitude of this effect is potentially substantial. This trade distorting effect is likely to be higher than that arising from more conventional policy instruments and it leads

³ As we have noted elsewhere, the nature of exclusive rights is central to understanding the role of state trading and GATT rules and in modelling the potential effect of state trading enterprises.

to welfare losses both for the country that employs them and for other countries that have to compete with state trading enterprises in world markets or which are denied access to state trading importing countries. As such, their existence should be addressed directly in the context of WTO negotiations.⁴

We have also addressed the potential trade distorting effect of the FCI. Calibrating the model with import data for wheat and rice, we have shown that the trade distorting effect of the FCI is likely to be considerable. Even allowing for markets to be competitive, in the absence of the FCI, and taking into account the non-commercial sales of the FCI under the Targeted Public Distribution System, the trade distorting impact of the FCI in the rice and wheat markets is significant. Specifically, the FCI is equivalent to an *ad valorem* tariff of around 240 per cent for wheat and over 300 per cent for rice. Allowing for less competition to emerge as the exclusive rights of the FCI are eroded (i.e., there exists only a small number of private firms), reduces the tariff equivalent measures quite considerably, though the main determinant of the size of these tariff equivalent effects is the bias in government policy that the FCI reflects.

3. De-Regulation of the FCI and Increasing the Role of the Private Sector

As noted in the introduction, there is considerable on-going debate about the need for reform and the nature that the reform package should take for agricultural and trade policies in the wheat and rice sectors. Against a background that the aim of national self-sufficiency has been met, the use and level of the Minimum Support Prices, the effectiveness of the Targeted Public Distribution System, the growth of stocks of rice and wheat, the cost of their disposal, and inter-state barriers to transferring food grains

⁴ In these negotiations, it was agreed that exporting state trading enterprises will be subject to greater discipline. However, importing state trading enterprises are not part of the agenda.

between surplus and deficit regions, have all led to various proposals to limit the budgetary consequences and to provoke analysis about improving the effectiveness of government policies in this sector. Central to these discussions is the future role of the FCI. Given that the FCI has been an integral feature of the procurement and marketing system in India, and coupled with criticisms over the relative effectiveness of the FCI in achieving the government's goals, the possibility of de-regulation of the marketing system, by allowing private traders an increased role, is one of the key features of the current policy debate. Acknowledging that any reform of the FCI will also alter its status as a monopsony importer/dominant exporter, de-regulation will also impact on the trade distorting effect of the FCI on world markets.

Clearly it is anticipated that de-regulation of the FCI, by increasing the role of the private sector, coupled with other reforms, will be welfare improving. However, while there has been some analysis of the outcome of changing policy instruments (e.g. the use of the Minimum Price Support) or reducing the barriers to inter-state trade, there has been little formal analysis of what the outcome will be when market structure changes, i.e., explicitly when the dominant status of the FCI in procurement, distribution and trade is diluted. Nevertheless, having some perspective on the outcome of changes in market structure is key to fully understanding the potential significance of de-regulation.

The modelling framework we have outlined above to assess the trade distorting effects of state trading enterprises can also provide a basis for analysing the consequences of de-regulation. As the conception of these models was based on a mixed oligopoly set-up with an extensive array of possibilities that allow for a

consideration of the role of the private sector and the extent to which competition could arise, this methodology can be applied to assess the welfare consequences of changing market structures. This assessment is important because, in the context of the de-regulation debate, it is unlikely that the market which will evolve will be some textbook outcome with perfect competition in both domestic markets and trade and in which governments are completely absent from the market. This point is also important to recognise because, when governments give up one instrument to achieve an outcome, they invariably introduce another. Therefore, de-regulation may involve replacing state trading with another instrument. Taken together, the more realistic scenario for understanding de-regulation is one where de-regulation is only partial in nature. Given the second-best nature of the market with the state trading enterprise, partial de-regulation will involve a different second-best outcome with no guarantee that welfare will be increased in the process.

To highlight some of these issues and the applicability of the framework, we refer to related research that deals with de-regulation of the state trading enterprise (BULOG) in Indonesia. In brief, the background to this research takes the debate of de-regulation of BULOG in the procurement, distribution and import of rice in Indonesia. As with the status of parastatals in many Asian countries, there has been a tendency to reform state enterprises and reduce their dominance in the commodity markets in which they operate⁵. De-regulation of the rice market in Indonesia has involved a number of elements. First, the monopsony status of BULOG in the market for rice imports was removed (although subsequently, it was restored). Second, its revised objective was that it should become more 'commercially-orientated'. Third, tariffs

⁵ In some cases, as in the case of Indonesia, the pressure for reform has come from international organisations such as the IMF, where assistance from the IMF in the midst of the Asian crisis was conditional on reforms of state trading enterprises.

and domestic price supports were to replace the functions of BULOG with respect to domestic farmers. And fourth, there was to be an increased role for the private sector.

In Table 1 we report some results for several scenarios relating to de-regulation in Indonesia. McCorrison and MacLaren (2007b) provides the relevant details. We start with the case where the state trading enterprise has dominant status in both international trade and the domestic market. We then move through a series of other cases, some of which involve changing the objectives of the state trading enterprise. These are re-distributive concerns, to welfare maximisation through to profit maximisation. These different objectives are captured going across the columns in the table. The cases refer to the extent of the exclusive rights that apply and, with them, the increased role of the private sector. These are captured moving down the rows in the table. The numbers reported in Table 1 are the percentage changes in national welfare compared with the case where there is no state trading enterprise, with all procurement, trade and marketing being undertaken by the (competitive) private sector. A positive (negative) entry reports that welfare will increase (decrease) as we move from the specific case to the private firm-only case.

There are two broad conclusions to draw from the Table. First, de-regulation may not necessarily be welfare enhancing, as the presence of minus signs in the first three columns indicates. Particularly important are the different objectives of the state enterprise. Reforms that involve the state trading enterprise becoming more 'commercially-orientated', i.e., maximising profits, is likely to exacerbate market distortions and reduce welfare but the outcome depends upon the specific Case under which the change occurs, e.g., Cases 4 and 5.

Table 1: Welfare Effects of Partial De-Regulation^a

	Producer Biased STE	Consumer- Biased STE	Welfare Maximising STE	Profit Maximising STE
Case 1 ^b	2.12	0.05	-0.25	nc
Case 2	nc	1.00	nc	0.14
Case 3	0.33	0.05	-0.25	0.17
Case 4	-0.24	-0.25	-0.25	0
Case 5	-0.24	-0.24	-0.24	0

Notes:

a The figures in the table are percentage changes in welfare relative to a private firm, Cournot benchmark of 20 firms. nc refers to not calculated: specifically, for the parameters chosen, derived prices were negative.

b The cases are defined as follows:

Case 1 (STE only)

Case 2 (STE imports only, private firms in domestic market only)

Case 3 (STE in import and domestic market, private firms in domestic market)

Case 4 (STE in the domestic market only, private firms in the domestic and import markets)

Case 5 (STE and private firms compete simultaneously in both markets)

Second, promoting private sector involvement while, at the same time, retaining the status of the state trading enterprise is no guarantee that welfare will increase. The precise outcome depends on the extent of the exclusive rights that the state enterprise retains in the process of de-regulation and the objective that it is pursuing. For example, if the objective of the state trading enterprise is biased towards producers or consumers, then the co-existence with the private sector in Cases 4 and 5 still leaves overall welfare higher than in the benchmark with private firms alone and, therefore, total de-regulation would not necessarily be beneficial. This arises because the STE continues to deal with one market distortion. As it is concerned with producer or consumer welfare, it has a pro-competitive effect on the domestic market and raises welfare above that in the private sector benchmark. If the STE is welfare maximising, it is correcting two market failures simultaneously and its removal causes a welfare

loss because in the private sector, de-regulated situation, profits are maximised but the terms of trade effect, as well as the domestic producer and consumer welfare effects are being ignored. Thus, deregulation would lead to a welfare loss in all Cases. If the STE maximises profit, then because it is not distinct from the private firms that operate in the domestic market, there is no change in welfare in total de-regulation. Overall, these results highlight that partial de-regulation is not necessarily welfare enhancing and the outcome will depend on the change in the nature of exclusive rights and the objectives of the state trading enterprise.

What we also show in this research (but do not report explicitly here) are two additional issues that arise with de-regulation. First, though the net welfare effects may be positive or negative as reported in Table 1, there are nevertheless potentially substantial re-distributional effects that arise. As with the net welfare effects, the precise pattern of who gains or loses depends on the form that the process of de-regulation takes. Second, the outcome of de-regulation will also depend on what else the government does. Introducing floor prices and/or imposing tariffs on imports, or in other words, replacing the functions of the state trading enterprise with other policy instruments can have a significant effect on the de-regulatory outcome. Indeed, if the comparison is made between a state trading enterprise that controls domestic prices and imports, and a private sector operating with a floor price and an import tariff, there is no guarantee that private sector competition is necessarily desirable.

We have also taken the above framework and applied it to the case of the FCI in India. It should be pointed out that the exercise reported here is experimental in nature but nevertheless provides a mechanism to ask the appropriate questions about de-

regulation starting from one market structure and moving to another. To focus the example, we consider the market for wheat and take imports to be zero, i.e., it is a ‘closed’ economy case. This case allows us to focus primarily on the domestic de-regulation issue. We also consider a scenario where part of the functions of the FCI are dealt with by more explicit policy instruments such as the TPDS directed towards consumers⁶ and a deficiency payments scheme to provide support prices to producers if the producer prices with de-regulation fall below a certain level.

The results of this exercise are presented in Table 2. With the data used to calibrate the model, the private sector outcome with neither the FCI nor government intervention would lead to higher welfare. The results with some combination of the FCI and the use of other government instruments will lower welfare compared with this benchmark. The most substantive changes in welfare come via the change in the objective function of the FCI. Becoming ‘more’ (but not completely) profit-orientated (Case (i) to Case (ii)) will reduce welfare substantially when measured against the benchmark (–29.5%). Introducing the private sector to some extent deals with this loss because welfare rises as the market becomes more competitive (consider moving from Case (ii) to Case (iii)). With the private sector now playing a stronger role, reducing the weight on consumer welfare (Case (iv)) does not have an appreciable (marginal) effect on overall welfare or on consumers. Finally, in Case (v), we have the private sector with no FCI but the government deals with its policy aims through the MPS and the TPDS. In this case welfare is lower than in the private sector case with no government intervention mainly due to the fiscal costs of the TPDS policy –

⁶ In the absence of the FCI, providing the poor with staples at low prices may work through a food stamp programme for example.

the market supply price being above the guaranteed producer price results in there being no deficiency payment.

Table 2: Welfare Effects of Partial De-Regulation of the FCI

<i>Scenario^a</i>	<i>Welfare Change^b</i>
(i) Welfare Maximising FCI	15.2
(ii) Profit Orientated FCI	29.5
(iii) FCI with Private Sector	3.4
(iv) FCI, Private Sector, No Consumer Support	3.2
(v) Private Sector, No FCI, With MSP & TPDS	2.1

Notes:

a. The scenarios are detailed as follows:

- (i) *Welfare maximising FCI* is where the FCI maximises social welfare (comprising consumer surplus, producer surplus, profits and tax expenditure)
- (ii) *Profit orientated FCI* is where the FCI has reduced, but not to zero, the weights on producer and consumer welfare and has placed relatively more weight on profits. It is not, however, exclusively profit maximising
- (iii) *FCI with Private sector* is the same as the previous scenario but where the FCI competes with 19 private firms
- (iv) *Private Sector, No Consumer Support* is where the FCI still exists but gives no weight to consumer surplus
- (v) *Private Sector, No FCI with MSP and TPDS* is where only private firms exist (with n=20) but the government uses Minimum Support Price (guaranteed price and deficiency payment and Targeted Public Distribution Scheme implemented through a direct, means-tested consumer subsidy for the poor.

b The welfare changes are percentage welfare changes in moving from the given scenario to the private sector outcome with no intervention.

The above discussion of the two examples presented above are primarily aimed at stimulating a thought process on de-regulation of state trading enterprises in a second-best world. The main point of the simulations in each case is to cast light on the likely outcome of different degrees of de-regulation rather than providing precise numbers *per se*. Moreover, the framework is flexible and can be calibrated to give insights into potential reform scenarios in different settings, including that associated with the current debate on policy reforms in the Indian food-grain sector and the status of the FCI. In that context, further work on aspects of de-regulation, including exploring the

robustness of the above insights, would be an interesting and important path to pursue.

4. Further Issues: De-Regulation and Risk

As discussed above, the current commodity boom serves to highlight the volatile nature of world markets. Yet most research on policy reform, including the discussion of de-regulation above, deals principally with level effects, i.e., the means of price series while ignoring the variances. In this section, we raise some additional issues that relate to the de-regulation debate. Specifically, does the existence of commodity price volatility change the perspective on the desirability of de-regulation? These issues are posed to raise the issues rather than to provide a detailed literature review.

Take, first of all, the issue of the trade distorting effect of state trading enterprises that we have dealt with elsewhere (McCorrison and MacLaren 2005, 2007a) and applied to the Indian case (McCorrison and MacLaren, 2006). We have shown that state trading enterprises are potentially trade distorting insofar as they influence market access or the intensity of export competition. This was explored in a world of certainty. Yet one of the key rationales for state trading enterprises is the way in which they influence uncertainty and, therefore, this is an important issue to address.⁷

The trade policy literature does deal with uncertainty to some extent, though the context has been limited. To over-simplify, it has been shown that the choice of trade policy instrument does matter when uncertainty exists, though the comparison is

⁷ In its submission to the negotiations on agriculture, the Mauritian government made the point that it regarded STEs as an important means of moderating the risks faced by developing countries in international markets, as well as helping to control the market power of international firms (WTO, 2000). This rationale underpins the role of many other STEs (see, OECD, 2001).

usually between price-related instruments (specific or *ad valorem* or sliding tariffs or subsidies) compared with quantitative instruments (see, for example, Cooper and Reizman, 1989; and Falvey and Lloyd, 1991). More generally, the standard case for openness may be called into question when price volatility in the domestic market is uncorrelated with price volatility originating on the world market (Newbery and Stiglitz, 1984).

These results give rise to two related but separate questions. First, compared with more standard trade policy instruments, does a state trading enterprise do a better job of ameliorating the domestic impact of uncertainty that arises on world markets, regardless of the nature of the exchange rate regime? Second, if the government ‘cares’ about the potential impact of uncertainty on the welfare of any particular group (i.e., it explicitly enters the state trading enterprise’s objective function), does this impact on the potential trade distorting effect of the state trading enterprises? There is also a subsidiary issue. If producers are risk averse and if commodities are spatially concentrated in particular States, then intervention has two effects, both of which alter comparative advantage across the States. It is not only the mean level of price support for a particular commodity that matters, but also the certainty of that support, i.e., the effect that the instrument has on the variance of price.⁸

Second, consider the domestic debate on de-regulation and consider the question of volatility of commodity prices originating from either domestic markets or world markets, or both. Underpinning the scenarios outlined in Tables 1 and 2 above are

⁸ For example, the STE might purchase at a pre-announced fixed price which all producers obtain, whereas an alternative instrument, operating independently of an STE, could be a guaranteed price/deficiency payment system which affects only down-side price risk. In the first case, the variance is zero whereas in the second it is positive but less than the variance in the absence of the instrument.

changes in market structure where the private sector co-exists to varying degrees with the state trading enterprise. But how does market structure influence the degree of price volatility? Are domestic prices more or less stable and does the extent of price volatility depend on its source? How does the existence of the state trading enterprise influence the outcome and is the manipulation of market structure a better or worse way of dealing with an uncertain environment than more standard policy instruments?

These issues (both the external consequences of state trading and the internal aspects in terms of re-distributive effects) are both challenging and important in addressing the trade distorting effects and the domestic de-regulatory impact of state trading. Current events on world commodity markets highlight that any discussion about government policies cannot be limited to level effects alone but must also include the effects of price volatility and risk aversion. These are issues which we aim to address in future research.

5. Concluding Remarks

In this paper we have summarised recent developments in our analysis of state trading enterprises and have related its significance to the policy debate on the role of the FCI in India and the potential impact of de-regulation. This builds on our work that focussed more directly on the trade distorting impact of state trading enterprises. The significance of the departure outlined here is that the models used to address the trade distorting effect can be readily adapted to explore the potential consequences of domestic de-regulation. This is of direct policy relevance, not least because the models we have developed allow us to explore a menu of scenarios that correspond to various forms of partial de-regulation of state trading. This is arguably the more

realistic outcome rather than the case where significant government control via the FCI goes to unrestrained competition among private firms. As such, the results reported in the paper should be regarded as purely exploratory in nature, the emphasis being on the potential of the framework rather than the detail of the results.

We have also highlighted issues requiring further investigation. Given that governments are often concerned with food security and the impact of price volatility more generally, against recent developments in world commodity markets, the rationale and the consequences of state trading enterprises in an environment of uncertainty is a key issue to address and will be important in contributing to the debate on de-regulation of the FCI.

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