
**A CONCEPTUAL FRAMEWORK TO UNDERSTAND
SUPPLY MANAGEMENT PROGRAMMES***

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EXECUTIVE SUMMARY

1. A supply management programme can be defined as a policy tool that controls the production and supply of a commodity in order to achieve a desirable price objective in a relevant market. The relevant market could be domestic or international. Many governments in developing countries, NGOs, civil societies, producer organisations and academics have recently voiced their support for the reintroduction of supply management programmes for addressing some aspects of the commodities problem.
2. The importance of supply management as a mechanism for addressing certain aspects of the problems of tropical cash crop commodities is justified by multiple cases of market failure, particularly structural oversupply of commodities, which market forces cannot fully correct. However, supply management schemes are neither applicable to all commodities nor panaceas to the commodities to which they can be applied.
3. Supply management programmes can be broadly categorised into domestic (national) and international schemes based on the nature of commodities covered under them and on their objectives. By the nature of commodities covered by the scheme, it means whether the commodities are tradable domestically or internationally. By objective, it means whether the primary target of the scheme is the domestic or international market.
4. The objective and form of the supply management scheme determines the choice of policy instruments. In general, the main policy instruments for supply management programmes include one or a combination of import restrictions, domestic production regulation and export subsidies.
5. The schemes are easy and best applicable when the number of countries and the number of producers are small, when cost structure of producers within and among countries is comparable (symmetric) and when there are entry barriers to new producers.
6. Despite differences in difficulties for reaching and enforcing agreements, all supply management schemes are susceptible, among other things, to quota allocation problems, rent seeking activities, cheating, free riding and high regulatory cost.
7. The most important factor for a success of supply management schemes is the commitment of producers. In addition, supply management schemes are more likely to succeed when the number of producers with large market shares is small; price targets are modest; elasticity of demand for the commodities under the schemes is low; and the substitutability between commodities under the scheme and other commodities or substitutes is low.

A CONCEPTUAL FRAMEWORK TO UNDERSTAND SUPPLY MANAGEMENT PROGRAMMES

I. INTRODUCTION

1. Many governments in developing countries, NGOs, civil societies, producer organisations and academics have recently voiced their support for the reintroduction of supply management programmes for addressing some aspects of the commodities problem¹. In line with this growing view, six African countries² made a joint submission to the Committee on Agriculture (in Special Session) of the WTO asking, among other things, for derogations of certain WTO obligations when deemed necessary for the effective operation of supply management programmes for coping with problems of structural oversupply³.
2. The submission, however, did not specify the policy instruments of supply management programmes for which derogations from WTO obligations were sought. One form of supply management is not recommendable for all types of commodities. The particular policy instrument or combination of instruments for a supply management programme has to be determined on commodity-by-commodity and country-by-country basis taking account of effectiveness, efficiency, equity and cost considerations.
3. The purpose of this paper is to explain some basic concepts about supply management programmes. The rest of study is organised as follows: section II discusses the nature of tropical commodity markets highlighting cases of market failures. Section III provides a lengthy discussion on basic conceptual issues of supply management programmes. Finally, section IV provides a conclusion.

II. THE NATURE OF TROPICAL COMMODITY MARKETS

4. The market for tropical agricultural commodities is characterized by a combined existence of:
 - (i) Low elasticity of demand, i.e. low responsiveness of demand for changes in prices;
 - (ii) Low income elasticity, i.e. low responsiveness of demand for changes in consumer income;

¹ See for example, Committee on Agriculture Special Session, JOB (05)/113; Koning, N. and Robbins, P. (2005). “*Supply management for supporting the prices of tropical export crops*”, Paper presented for IIED and ITCSD conference held in Barcelona. Maizels A. et al. (1997). “*Commodity Supply Management by Producing Countries: A Case Study of the Tropical Beverage Crops*”, Clarendon Press, Oxford.

² Cote d’Ivoire, Kenya, Rwanda, Uganda, Tanzania and Zimbabwe

³ Committee on Agriculture Special Session, JOB (05)/113.

- (iii) Declining or sluggish demand;
 - (iv) Large number of small-scale producers; and
 - (v) High concentration of buyers.
5. No one of these characteristics is unique to tropical commodities; nor would any one of them alone explain the large and extended market disequilibrium in tropical commodity markets⁴. However, the combined existence of these characteristics is unique to tropical commodities and few other non-tropical agricultural commodities produced in developing countries. The combined existence of these characteristics explains the large and extended market disequilibrium. Hence, the low and fluctuating prices of agricultural commodities.
6. The economic characteristics of tropical commodities can be categorized into demand and supply side characteristics. The low responsiveness of the demand for tropical commodities to changes in tropical commodity price and consumer income; and the high concentration of buyers made up the demand side characteristics. The supply side characteristics of tropical agricultural commodities can be succinctly stated as:
- (i) Large number of small-scale producers, who are price-takers and have little influence on price under free-market conditions;
 - (ii) Supply-side rigidity, i.e. the low responsiveness of supply to short and medium term price changes;
 - (iii) Minimal state intervention in producing countries, due to the deregulation of commodity markets promoted, in most countries particularly in Africa, as part of the Bretton Wood Institutions' loan conditionality package; and
 - (iv) Mounting stock-overhang or structural oversupply of commodities, such as coffee and cocoa, because of fast expansion of production.
7. The low responsiveness of demand to changes in price implies that selling a few more of commodities require a disproportionate reduction in price. It also implies that little variation in supply causes a large disruption in the market, which winds up into excessive price volatility. In addition, asymmetries of power between buyers and producers, and structural oversupplies have had major roles in lowering farm-gate prices. Non-remunerative farm-gate prices of tropical commodities have been persistent for a long period of time because of supply side rigidities or the slow adjustment of supplies to changes in prices.
8. Excessive short-term volatility, persistent long-term price decline, immense asymmetry of market power, structural oversupply and supply-side rigidity are all cases of market failure. These cases of market failure are the reasons that

⁴ Hathaway, as cited by Gouin, 2004. "Supply management in the Dairy Sector Still an Appropriate Regulation Method". GREPA, P.5.

the deregulation of tropical commodity markets in Africa worsened poverty in the continent⁵.

9. In the past, international and domestic market intervention mechanisms were established for correcting tropical commodity market failure. However, the mechanisms were demised in the last two decades. Recently, producer countries' urge to reinstate intervention mechanisms using supply management schemes is mounting.
10. It is thus worth to ask: what is a supply management programme? How does it work? What policy tools does it involve? Moreover, what factors determine its success? These and other conceptual issues of supply management programmes are briefly discussed in the subsequent sections.

III. SUPPLY MANAGEMENT: CONCEPTS

A. Definition

11. A supply management programme can be defined as a policy tool that controls the production and supply of a commodity in order to achieve a desirable price objective in a relevant market. The relevant market could be domestic or international, depending on the objective of the programme and the nature of commodities covered under the programme. The price objective of a supply management programme can include both the level and stability of prices. However, maintaining the balance between the two price objectives could be difficult.

B. Forms of Supply Management

12. Supply management programmes can be broadly categorized into domestic (national) and international schemes on the nature of commodities covered under them and based on their objectives. By the nature of commodities covered by the scheme, it means whether the commodities are tradable domestically or internationally. While, by objective it means whether the primary target of the scheme is the domestic or international market.
13. Technically, supply management schemes of commodities that are traded only in domestic markets (i.e. internationally less tradable) are in principle domestic schemes. However, domestic supply management schemes are not necessarily limited only to domestically traded commodities. For example, the

⁵ See, ul Haque, I. (2004). "*Commodities Under Neoliberalism: The Case of Cocoa*", UNCTAD, G-24 Discussion paper series. Available at http://www.unctad.org/en/docs//gdsmdpbg2420041_en.pdf last accessed 19 October 2004; Gilbert, C. L. and P. Varangis. (2003). "*Globalization and International Commodity Trade with Specific Reference to the West African Cocoa Producers*", National Bureau of Economic Research, Working paper 9668.

European Common Agriculture Policy (CAP) is basically a domestic intervention policy; yet substantial numbers of commodities covered under the CAP are internationally traded (sugar is a typical example in this case). The poultry and dairy regimes in Canada and the dairy and sugar regimes in the US are also typical examples of domestic supply management programmes of internationally tradable commodities.

14. Hence, domestic supply management schemes are defined by the less international tradability of commodities covered under the schemes and/or by the fact that the domestic market is the relevant market in which the schemes are designed to meet their objectives. Therefore, supply management schemes are regarded as domestic schemes when they are primarily aimed at raising or maintaining higher domestic prices of commodities.
15. Similarly, international supply management schemes refer to such programmes that are established through agreements concluded by more than two countries for intervening in international commodity markets in order to achieve agreed price objectives (such as price stabilisation or raising prices). International supply management schemes could be further categorized on the basis of:
 16. *Objectives of the schemes*, i.e. for price stabilisation (as the case was for most of the previous ICAs); for increasing and maintaining higher prices (e.g. Organisation of Petroleum Exporting Countries, OPEC); for reducing or eliminating commodity 'stock overhangs' or structural oversupplies;
 17. *Policy instruments of the schemes*, i.e. production quota based; buffer-stock based⁶; or schemes that use a combination of quotas and buffer stock operations;
 18. *Nature of the participating countries*, i.e. agreements that allow the participation of both producing or consuming countries (e.g. the past ICAs); or producers only arrangements (e.g. OPEC and the diamond cartel-De Beers); and
 19. *Participation of commodity producers' in the scheme*, i.e. mandatory or compulsory supply scheme.
20. Since least is said in most literatures regarding the nature of producers' participation, the following subsection briefly discusses the issue.

C. Participation in Supply Management Programmes

⁶ Buffer-stock based stabilisation refers to buying and storing commodities on periods of low price and selling commodities out of stock on periods of high price in order to stabilise prices within a pre-defined ceiling and floor price band.

21. Supply management programmes could be classified into voluntary and mandatory programmes based on producers' participation. Voluntary production control programmes operate through producers' voluntary participation. Whereas, under mandatory-production-control programmes, participation under a set of prescribed rules is compulsory and producers have little choice but to follow the prescriptions.
22. Participation in voluntary supply management programmes depends on the attractiveness of incentives to participate and the consequences of non-participation⁷. When the consequences of non-participation are highly severe, participation becomes de facto mandatory: producers' cannot afford not to participate even if voluntary signup is required for participation. In the U.S. grain farmers have been required to (voluntarily) set aside land from grain production in most years since 1978 in order to qualify for deficiency payments and loan rates. Similarly, under the Milk Diversion Program (MDP) of the Dairy Production Stabilisation Act of 1983, milk producers who contracted with United States Department of Agriculture (USDA) to reduce their marketing from 5 to 30 per cent below their base level were provided payments for a 15-month period⁸. Under voluntary-production-reduction programmes, participation is generally a response to incentives.
23. Under mandatory production management programmes, participation is compulsory and usually there are penalties for non-participation. The driving force of such schemes is penalties. Most European and Canadian quota programmes are mandatory because producers who exceed their quota are subject to penalties.

D. The Merits of Supply Management in Developing Countries

24. As sketched out in section II, commodity markets are in general characterised by multiple cases of market failure. One aspect of the market failure, which is more prominent in tropical commodities, is structural oversupply. Structural oversupply could be defined as a persistent expansion of productive capacity and production at a rate that is faster than the growth of consumption⁹.
25. When market forces fail to equilibrate demand and supply, within reasonable time periods and at a competitive price that is fair to both sellers and buyers, the importance of government intervention for rectifying optimum social outcomes is cannot be overemphasised. Supply management schemes are one policy option for such interventions.
26. However, supply management schemes are neither applicable to all commodities nor panaceas to the commodities to which they can be applied.

⁷ Cropp, R. 1993, "Voluntary Milk Supply Management: Dairy Markets and Policy Issues and Options", Cornell University.

⁸ Ibid.

⁹ Maizels, A. 1997, op. cit. P. 57.

Supply management programmes are easy and best applicable when the number of countries and the number of producers are smaller, when the average cost structure of producers within and among countries is comparable and when there are entry barriers to new producers.

27. Alternative approaches to supply management programmes, which however are not mutually exclusive, are measures that opt to reduce abnormally high stock overhangs. These approaches include¹⁰:
28. A *stock-reduction scheme*. The scheme opts to reduce an abnormally high stock-overhang in an orderly manner without affecting price mechanism. This scheme does not have any price objective and is easier to negotiate than, for example, quota arrangements. The scheme would do little in terms of raising prices from their depressed levels.
29. An *'export-quota scheme for reducing-stock-overhang'*. This approach is linked to the stock-reduction scheme and pursues a reduction of commodity oversupply. The major difference between traditional export-quota and export-quota scheme for reducing-stock-overhang is that the former opts to achieve an agreed price level while the latter only intends to influence prices through sentiments by reducing high stock-overhangs. In other words, while the traditional export-quota scheme affects price through reducing quantities which is would otherwise be sold in the market within a reasonable period, the export-quota scheme for stock-overhang intends to reduce only the supply, which is residual of demand. Hence, the price effect of the latter scheme is through reducing commodity stockpiles rather than creating immediate supply shortages in market.
30. A *production-reduction scheme*. This scheme refers to an agreed uniform cut of production by exporting countries in order to reduce large stock- reserves of commodities. This scheme is often negotiated for a limited period.
31. *Imposition of uniform ad valorem export tax*. This approach intends to raise price by imposing uniform export tax on exports from all main producing countries. This approach is easy to negotiate among exporters because the uniformity of the tax renders the approach non-discriminatory. The disadvantage is that a relatively large tax is required to achieve the same increase in export revenue that would be obtained by a relatively small reduction in supply.
32. The above approaches have the advantage of being easy to negotiate and agreed upon than supply management programmes. Nonetheless, supply management programmes, if, firstly, agreed upon by all exporters (or all important exporter and/or importers); and, secondly, designed and enforced efficiently could have the virtue of being more effective in raising commodity prices from their depressed levels, increase the foreign exchange earnings of

¹⁰ Ibid. 59-66.

CDDCs and improve producers' and rural communities' long-term standard of living.

33. One of the major sources of social and economic development challenges of CDDCs is falling commodity prices. In the case of tropical commodities, the price fall is mainly due to factors such as structural oversupply of commodities and asymmetry of bargaining power along value chains of commodities. Each of these factors is manifest a case of market failure the correction of which, through market intervention, is a prerequisite for raising prices from depressed to remunerative levels. What price level is remunerative is, of course, open to argument, and varies from one commodity to another.

E. Criticisms against Supply Management Programmes

34. There are many arguments against supply management programmes. In this paper, we limit ourselves to the two most frequently advanced arguments¹¹: they would be unfair to importing countries and would distort commodity markets by encouraging unnecessary increases in production, thus entailing a misallocation of resources. Both issues are considered below.

1. On fairness to importing countries

35. It is a fact that a successful supply management that raises prices of commodities inevitably raises the cost of import of those commodities. However, the issue in the present context is raising prices from their depressed levels. The continuous decline of commodity prices has been severely hurting commodity exporting countries and their producers. Hence, the use of supply regulations in order to raise commodity prices from their depressed to remunerative levels should only be regarded as a rectification of fairness and justice, not as discriminating against the interest of importing countries.
36. Often, issues related to food importing developing countries (NFIDCs) are raised in connection with supply management schemes. The fact is that supply management programmes are not feasible for most foodstuff commodities but as this paper argues, for some tropical cash-crop commodities. While the prices of these tropical cash-crop commodities are phenomenal for food security and rural development in exporting countries, they are less important to the food security and rural development objectives of NFIDCs. The reason is that for many tropical commodity dependent developing countries, the export prices of their respective export commodities are their mainstays. However, NFIDCs' import of tropical cash crops accounts for less share of their total import spending. Therefore, it is precarious to argue that supply management programmes that increase the price of tropical cash-crop commodities ipso facto hurt NFIDCs.

¹¹ Maizels, A, 1992, "*Commodities in Crisis*", Clarendon Press, Oxford. p. 49-50.

37. In addition, the developed countries that are major importers of tropical cash crop commodities will be partially compensated for the rise of commodity prices from rising import demands by developing countries that accompany improvements in their foreign exchange position. With this disposition, Maizels (1992:50) underscored that “the question of equity in trade relations between developed and developing countries cannot be assessed purely in terms of narrow commercial advantage between importers and exporters of a particular commodity, but must be set in the wider context of development in the world economy as a whole”¹².

2. The market distortion effect of supply management

38. It is widely accepted that market interventions are in general distortive. Hence, they should be kept to as minimum as possible where market forces can achieve desirable social and economic objectives. However, markets, particularly commodity markets, do not always result socially optimum outcomes because of the multiple cases of market failure.

39. The liberalisation of commodity markets in developing countries, particularly in Sub Saharan Africa, have worsened poverty through depressing farm-gate prices thereby leading to social and economic catastrophes¹³. Effective and efficient intervention to correct commodity markets, particularly to raise prices to a level that reverses the suboptimal outcome of market forces is least market distortive.

40. The degree of market distortion varies from one form of intervention to another. This makes generalisations misleading. It is, therefore, vital to differentiate between the type of commodity market intervention through supply regulation that developing countries have been advocated for long and the type of market intervention that developed countries have been using. Market interventions in developed countries have more often than not been involving huge amount of market distortion subsidies. The European CAP and the US farm bill are phenomenal examples. In sharp contrast, supply management programmes in developing countries are intended to raise depressed prices to remunerative levels in order to ameliorate chronic poverty and often do not subsidies that are high enough to distort markets.

F. The Use of Supply Management Programmes by Developed Countries

41. Industrial countries show strong aversions to the use of mechanisms for commodity market intervention, particularly when the aim of the intervention is to raise commodity prices from their depressed levels. However, facts show that supply management schemes appear to be used by industrial countries more frequently than is acknowledged.

¹² Ibid.

¹³ Ul Haque, I. 2004, op. cit.

42. The European CAP is basically a supply management scheme that has been put in place in order to promote the domestic production of agricultural commodities through raising domestic prices above that prevailing in international market. The CAP uses a combination of high tariffs and non-tariff barriers on trade and price support mechanisms.
43. In addition, under the auspices of the GATT, in the early 1980s, developed countries established the International Dairy Agreement and the International Bovine Meat Agreement. The objective of these agreements was to stabilise the respective markets and increase the prices of dairy and bovine meat producers in developed countries through the establishment of minimum export prices. These two agreements were incorporated in the WTO agreement as plurilateral agreements and were operational until they were terminated by the end of 1997.
44. Both the US and the EU use bilateral commodity agreements as a means for restricting exports into the US and EU respectively. Parimal (2005) documented how the EU and the US, through bilateral commodity agreements, aggressively limit imports of commodities to their markets primarily through imposing export quotas and export licenses on exporting countries¹⁴. In addition to the export quota and export licenses, the bilateral commodity agreements of the US have minimum (floor) export price clauses.
45. For example, to protect their ailing steel industry, both the EU and the US have signed bilateral steel agreements with Russia, Kazakhstan and Ukraine - all non-members of the WTO - forcing the three countries to limit their export to agreed bilateral quotas. The EU and the US have signed bilateral commodity agreements with WTO member countries such as Moldova¹⁵ and Brazil¹⁶.
46. The bilateral commodity agreements are not limited to steel but include other primary and manufactured products such as textile, beer, wine, automobiles, cellular phones, wood, semiconductors, flat glass, software lumber and fisheries¹⁷.
47. These EU- and US-led bilateral commodity agreements closely resemble the export control based traditional international commodity agreements¹⁸ such as the international coffee and international sugar agreements. The proliferation

¹⁴ Parimal, J. 2005, "*Bilateral Commodity Agreements-New Generation Grey Area Measures*", (Draft). Commonwealth Secretariat.

¹⁵ Latest signed in 2004.

¹⁶ The US-Brazil steel agreement was signed in 1998 when Brazilian steel export to the US was subjected to a CVD investigation by the government of the US. The agreement came to an end in 2004 when Brazil expressed its desire to terminate the agreement. The USA reimposed CVD on the steel in question.

¹⁷ See Parimal, J. 2005, for more details.

¹⁸ Export-control-based international commodity agreements refer to the international coffee agreement and the international sugar agreement whose operation was based domestic production quota.

of bilateral agreements in commodities with high political sensitivity to the EU and the US indicates that supply management schemes in commodity markets are indeed sensible policies when market deregulations, due to market failures, are incapable to deliver optimum social outcomes.

G. Policy Instruments for Supply Management Programmes

48. The objective and form of the supply management scheme determines the choice of policy instruments. In general, the main policy instruments for supply management programmes include one or a combination of:
- (i) Measures for regulating domestic production and supply, this could be either through a production quota, domestic buffer-stock operation;
 - (ii) Measures for import control, this could be by the use of quotas, tariff rate quotas (TRQs) or higher tariffs; and
 - (iii) Export subsidies, e.g. including export credit, marketing loss payments
49. The particular nature of policy instruments appropriate for different forms of supply management programmes are discussed below.

H. Instruments for National Supply Management Programmes

1. For domestically traded commodities

50. Domestic supply management schemes for domestically traded commodities primarily rely on policy instruments that restrict the domestic production of covered commodities. Under mandatory programmes, governments can enforce production quotas, which can also be complemented by buffer stock operations. Production quotas could be less costly to apply but difficult to enforce for reasons discussed later. In contrast, buffer stock operations could be costly if the quantity of supply that a buffer stock manager should buy from the market for achieving or maintaining higher commodity prices is persistently large. Buffer stock operation is more desirable if the nature of supply is such that seasons of excess supply are followed by seasons of short supply. However, in the presence of persistent oversupply, primary reliance on production quotas is preferable.

2. For internationally traded commodities

51. The EU and the US sugar regimes are typical examples of domestic supply management programmes of internationally traded commodities. The success of such programmes require a combination of policy instruments that restrict imports, reduce domestic production using production quotas or buffer stock operations and/or subsidies for exporting supplies that are in excess of the desired level.

52. Generally speaking, when an internationally tradable commodity is principally produced for domestic consumption, then increasing the domestic price of the commodity above international price requires: (i) measures for restricting imports and (ii) production quota or buffer stock operations, for reducing domestic supply. Export subsidies may be used to dispose excess supplies in international markets at prices below that prevailing in the domestic market.

I. Instruments for International Supply Management Programmes

53. The main policy instruments for international supply management schemes are production quotas and buffer stock operations. Production quota was the main instrument for the international coffee agreement (ICA) and the international sugar agreement (ISA), while buffer stock operation was the intervention instrument used by the International Cocoa Agreement (ICoA) and the International Rubber Agreement (IRA)¹⁹. The International Tin Agreement (ITA) was a hybrid agreement, which used a combination of the two instruments²⁰.
54. Unlike domestic supply management schemes, import barriers and export subsidies are not necessary for international supply management programmes. Rather, some policy measures for deterring free-riding by non-members and cheating by members are essential for the success of international supply management programmes.

J. Technical Problems with Supply Management

55. In general, supply management programmes of domestically traded commodities are easier to regulate, organise and enforce than supply management programmes of internationally traded commodities. Simply because the former is primarily a national policy issue while the latter involves a number of countries hence neither reaching agreements on structure, operation and strategy nor enforcement of agreements is trivial. Despite differences on the degree of difficulties in reaching and enforcing agreements, all supply management schemes are susceptible to similar problems. These include problems in allocation of production quota and rent seeking activities, cheating, free-riding and regulatory cost of supply management²¹.

1. Quota allocation

¹⁹ For detailed discussions on the structure of the ICAs, see Gilbert, C. L. 1996, "International Commodity Agreements: An Obituary Notice", *World Development*, 24(1):1-19.

²⁰ The Buffer stock manager of the ITA was also involved in forward trading.

²¹ For detailed discussions see the South Centre Analytical Note on commodities (SC/TADP/AN/COM/1, April 2005).

56. The efficacy of supply management schemes is tied up to an appropriate design, fair distribution and effective enforcement of quotas. Doing so requires a reasonably accurate estimation of the total supplies of covered commodities and the allocation of the total quota to producer that could allow desired price objective to be met. Allocation of quota is a sensitive and controversial issue of supply management programmes.
57. Production quotas limit the amount of commodities that producers could produce and supply in market. Hence, quotas grant the right to produce. A producer without a quota right is in principle prohibited from producing for sale. By limiting production and supplies, supply management programmes could increase prices of commodities. As such, a producer with a large production quota would gain more than a producer with a lower quota. Under such circumstances, there would be a stiff competition to gain large production quotas thereby leading to rent-seeking behaviour²².
58. Allocation of quota becomes particularly difficult when the cost structure of producers is largely asymmetric. Under a free market condition, producers whose cost of production is small tend to sell more at prevailing market prices and could still make profit. Such producers are reluctant to take part in supply management schemes unless they are granted high production quotas. Also, quality differences in commodities and change in consumers' taste in response to quality differences add enormous difficulties in quota allocation. Generally, producers of high quality commodities (facing high demands) get premiums and may not be as enthusiastic in joining supply management programmes as low quality producers unless the programmes take account of the quality differences in the allocation of production quotas.
59. In addition to cost asymmetries, quota systems are criticized as being restrictive to the entry of new efficient producers while maintaining inefficient producers.
60. Difficulties in quota allocation are problems pertinent to all quota-based supply management programmes; but the problems could be easier to address under domestic rather than international supply management schemes. This is mostly due to the likely similarity of production cost structures among producers within a country rather than among countries. In addition, quick adjustments of quota allocation rules in response to changes in market structures are easier in national than international schemes.

2. Cheating

²² Rent seeking behaviour refers to producers' endeavours such as lobbying and other tactics targeted towards obtaining large quota rights. This behaviour is usually driven by producers quest for profit and is often done by highly organized producers (either individually or collectively as a group) than by small and dispersed producers.

61. In the context of supply management, cheating refers to either producing/selling above one's quota limit at the regulated price or selling at a lower than the managed price in order to get a higher market share. Usually, the more common type of cheating in supply management schemes is producing (and selling) above quota at or below the managed price. Cheating is a temptation that every producer faces due to high prices of regulated markets.
62. Cheating would not be a big problem when only a few small producers engage in it. However, if, assuming that all other producers abide by the quota limit, each producer produces and sells above quota, prices will start to go down and the supply management scheme would be undermined and could even ultimately collapse. Effective enforcement of quotas, thus, requires punishments that make the cost of cheating by far higher than its potential benefit. However, the effectiveness of a threat depends on how easily a cheater can be traced and captured.

3. Free-riding

63. Free-riding refers to the act of benefiting from a collective programme without assuming a proportionate share of the cost of the programme. In supply management programmes, free-riding refers to taking advantage of high prices that prevail under the programmes without having to limit production or bearing any other incidences of the programme. Free-riding could potentially undermine the attractiveness of supply management schemes as production reduction commitments, undertaken by producers who are parties to the programme, would be offset by expansion of production by non-members.
64. Free-riding could be easier to overcome under national programmes through compulsory requirements. However, if a country which is an important exporter of a commodity chooses to free-ride by rejecting to join an international supply management programme, little can be done beyond political and diplomatic pressures.

4. Regulatory Costs

65. Supply management programmes that use export subsidies or other types of direct subsidies for disposing excess commodities at lower prices in international markets are generally expensive. The US cotton programme and the EU milk and sugar regimes are good examples. These types of interventionary schemes are too expensive to be used in developing countries and are a very inefficient way of spending public money.
66. Buffer stock based supply management programmes could also be expensive when shocks in commodity markets are persistent. Persistency of shocks, such as oversupplies requires, firstly, large financial reserves for buying and storing

excess supplies; and secondly, depletes the finance of the programmes thereby putting the whole system in jeopardy²³.

67. A less costly form of supply management programme is a domestic programme that is solely based on production control through quota. However, even such types of programmes could entail substantial cost of enforcement particularly on periods of rising demand when the temptation to cheat is high. Yet, some experts believe that the heavy cost of supply management can be partially overcome by making the system fully or partially self-financing by export taxes²⁴.

K. Important Factors for the Success of Supply Management Programmes

1. Commitment by Producers and Countries Members to the Programme

68. A definitive requirement for the success of supply management programmes is the commitment of all parties to the programme. Cheating and free-riding weakens the internal stability and sustainability of supply management programmes and ultimately would lead to a collapse of the programmes. Hence, all parties to supply management programmes participate on voluntary basis with the objective of maximizing collective interest.
69. Inherently, supply management schemes, particularly those agreed among large number of countries and producers, are less stable and risk collapse due to difficulty of reaching an agreement on quotas; and cheating and difficulty of detecting, capturing and punishing cheaters. Thus, the commitment of all the parties to the agreement is phenomenal to the success of supply management programmes. The commitment of members is partially influenced by the extent that the design and operation of the programme address issues of equity, efficiency and fairness.

2. Production Characteristics

70. Production characteristics of commodities: number of producers, structure of costs and product quality, affect the success of a supply management programme.
71. In general, the fewer countries and producers account for substantially a large share of production and trade of a commodity, the more successful a supply management programme could be. When the number of countries and producers of a commodity is large, neither reaching agreement on the

²³ Cashin, P., Liang, H., and J. McDermott. (1999). "Do Commodity Price Shocks Last Too Long for Stabilization Schemes to Work?" *Finance and Development*, September 1999. Available at <http://www.imf.org/external/pubs/ft/fandd/1999/09/pdf/cashin.pdf> last accessed 15 October 2004.

²⁴ Koning, N. and Robbins, P. 2005, op. cit.

technical aspects of the programme such as on quota allocation nor enforcing the agreement would be trivial. In such circumstances, the agreement could at best reflect the minimum common denominator. It can thus be vulnerable to cheating and free-riding.

72. In addition, producers' cost structures determine the stability and sustainability of supply management programmes. If the production cost structures within and across countries are highly asymmetrical, reaching an agreement on quota allocation would be a difficult task. The reason is that low cost producers may seek to join the supply management programme only when large quotas are offered to them. This is attributed to a better bargaining position that low cost producers has due to their ability to sell more and still make profits at depressed free market prices.
73. The same problem could arise when there are big differences in the quality of commodities produced in different countries and if consumers are willing to pay high premiums for high quality commodities. For example, the shift of consumers' preferences from robustas and unwashed arabicas to high quality arabica beans –also called Colombian “milds”– and “other milds” was an issue that created major disputes over the allocation of production quota under the international coffee agreement²⁵.
74. Hence, to be successful, the design of supply management schemes should be flexible enough (such as through periodic review mechanisms) to consider evolving issues of cost asymmetry and quality differences. Also establishing a peer-review and dispute settlement mechanism could be helpful in addressing some concerns on quota allocations and cheating²⁶.

3. Price Level

75. The success of a supply management programme is also affected by the level of price that it opts to attain. If the price objective is overambitious:
- (i) The extent of production reduction required could be too high to be attractive to producers;
 - (ii) Members could be tempted to cheat;
 - (iii) Non-members could be attracted to expand their production to take advantage of the high price;
 - (iv) Importing countries demand could shift from members to non-member exporters; and
 - (v) Importing countries could be encouraged to retaliate.
76. Therefore, a supply management programme should have a modest and reasonable price target. The ‘reasonability’ of a price target varies from one commodity to another.

²⁵ South Centre Analytical Note, SC/TADP/AN/COM/1 P.20.

²⁶ See, Koning, N. and Robbins, P, 2005, op. cit.

4. The Responsiveness of Demand to Changes in Price

77. The core objective of supply management programmes is not merely to raise prices from their depressed levels but to increase the export earnings of CDDCs and the income of producers. Supply management programmes that increase prices do not necessarily increase total export earnings and total incomes. The net effect on export earnings and income is determined by the combined effect of increased prices and the reduction in demand that may accompany the increase in prices.

78. In other words, when the demand for a commodity is elastic, i.e. the percentage decrease in demand is higher than the percentage increase in the price, raising price through supply management programmes decrease export earnings of countries and incomes of producers. Supply management programmes increase the foreign exchange earnings of CDDCs and raise producers' income only when they are applied on commodities with low responsive demand to price changes.

5. Degree of Substitutability by Competing Commodities or by Synthetic Commodities

79. Another important determinant of the success of a supply management programme is the availability of close substitutes. The success of a supply management programme is likely when the degree of substitutability between a commodity under the programme and competing commodities or synthetic commodities is low. In the jargon of economists, this refers to low cross elasticity of demand. Thus, in addition to low own-price elasticity of demand²⁷, low cross-elasticity of demand²⁸ is essential for the success of a supply management programme.

²⁷ Less change in a commodity's demand when its price change.

²⁸ Low change in a commodity's demand when its price relative to the prices of its substitutes or competing commodity changes.

Conclusion

80. The development priorities of CDDCs should incline towards achieving food security and rural development. Improved prices for export commodities of CDDCs are prerequisites for breaking vicious circle of chronic poverty. Sadly, facts show the reverse: the relative long-term prices of CDDCs export commodities have been persistently declining for nearly three decades.
81. CDDCs were ill-advised to embrace export orientation and internal market liberalisation policy approaches, which only served to exacerbate problems of food insecurity and perpetuity and pervasiveness of poverty. Overemphasis on export orientation, coupled with the demise of national and international interventionary mechanisms, has resulted in low commodity prices for internationally traded primary products, hence, waning developing countries' food purchasing capacity.
82. The current pace and structure of trade liberalisation in commodity markets in developing countries are devastating for the economic development of CDDCs. Further deregulation of commodity markets would exacerbate commodity price falls and volatilities; and increase market concentration and abusive opportunistic behaviour of global agro-industries. Therefore, as growing numbers of governments, civil societies, farmers' organisations and academics argue, market intervention could be a viable solution to some aspects of the problems of tropical cash crop commodities. With this backdrop, this paper attempted to highlight many basic conceptual issues of supply management programmes.
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