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Constrained Markets, 'Surplus' Commodities and International Barter

GARY BANKS *

International barter appears to have been enjoying a renaissance in recent years[1]. The literature dealing with this phenomenon has largely focussed on the newer forms of barter, or 'countertrade', which involve complex reciprocal purchase commitments and lengthy transaction periods. These arrangements have so far been mainly confined to East-West trade; they have generally taken place at the insistence of the Eastern partner, and have mostly comprised manufactured goods and their derived output[2]. The recent past has also witnessed, however, a considerable number of barter transactions of the more traditional type: most of these deals have involved direct exchanges of primary commodities and have often been instigated by state-trading agencies in market economies[3].

There are a number of reasons why, all else being equal, primary commodities would be preferred to other goods and services for barter purposes. *First,* most primary commodities are relatively homogeneous, which makes it easier to determine values and thus moderates the increased transaction costs and risks associated with barter. *Second,*

* Australian Government Service, Canberra. This article was written while the author was a member of the GATT Secretariat, Geneva. It contains his personal views. Helpful comments by JAN TUMLIR, GORDON PUGH and RICHARD BLACKHURST on an earlier draft are gratefully acknowledged.

1. See, for example: USITC [1982], World Trade Outlook [1982], EHRENHAFT [1983] and JONES [1984].

2. These forms of barter are commonly known as 'counterpurchase' and 'buy-back'. See, USITC [1982] and OECD [1979]. For an analysis of the motivating forces for countertrade in centrally planned economies, see BANKS [1983].

3. For instance, VOGT [1983] lists a sample of 74 commodity barter transactions involving developing countries between 1976 and 1983. Note that these are mostly 'monetized' barter transactions. 'Pure' barter – where money is not used for pricing or finance – is rarely encountered.

primary commodities are less 'lumpy' than most manufactures, allowing finer adjustment of quantities exchanged. *Third,* they are nevertheless usually sold in large consignments, so that the transaction costs of a given deal are relatively small as a proportion of the total values traded.

As to why traders in market economies should be involved in bartering primary commodities at all, given the inefficiency of this form of trade, one clue can perhaps be found in the allegedly high incidence of 'surplus' commodities in these transactions. For example, O'HAGAN [1962, p. 3] observed that, 'The existence of *excess production and stocks* has probably been the most potent direct cause of barter involving agricultural products'. And a more recent study on barter in developing countries noted that, '... in later years, the marketing of *surplus commodities* appears to be the most dominant objective' [OUTTERS-JAEGER, 1979, p. 13]. The same observation has been made by other sources [for instance, FAO, 1983] although nowhere have the implications received much analytical attention.

A 'surplus' is the excess of supply over demand for a product. In a competitive market, where prices are free to perform their market-clearing function, there can be no such thing as persistent surpluses. Excess supply is eliminated by downward adjustments in the market price: perhaps the most elementary proposition in economics. Indeed, commodity markets themselves provide adequate testimony of the efficacy of this mechanism, for many of them are characterised by periodic mismatching of supply and demand – given a lagged production response as in the Cobweb Theorem – and consequent fluctuations in price, sometimes of great amplitude. Therefore if surpluses do persist, the explanation must be found in the existence of impediments to the normal functioning of markets; and in the primary sector these impediments, for the most part, have been created by government policy. There are three main sorts: *domestic price controls, international price controls,* and *exchange controls.* All three can provide rationales for barter activity.

I. DOMESTIC PRICE CONTROLS

Most industrial countries heavily subsidize their agricultural sectors. For several commodities, subsidies take the form of schemes designed to support prices at or above some minimum level. This commonly involves a government undertaking to acquire unsold output at the designated

minimum price and is a particular feature of the subsidy programmes of the United States, the European Community and Japan, and several other countries.

Controlled prices will encourage surplus production whenever they exceed market-clearing levels, and this has been the recent experience for dairy products and grains in the United States; for these commodities, plus beef, sugar and wine, in the European Community; and for rice in Japan [OECD, 1983]. In many cases the support prices were originally set at or below market-clearing levels; the trouble has come from the fact that these levels have fallen in the meantime – due to secular downward shifts in supply curves, with stable or (cyclically) declining demand – whereas support prices have not. Hence the accumulation of the 'mountains' and 'lakes' in the EC the 'reserves' and 'inventories' in the United States, and *komai* (literally, 'old rice') in Japan.

The obvious economic solution to this problem is to reduce (if not eliminate) the support-prices and choose some less costly alternative measure for redistributing national income to the farming community. But farming lobbies have strongly resisted such a move, which would precipitate a decline in the capital value of farming enterprises, some of which may have been acquired at values determined under existing support prices, or have undergone capital improvements based on the same expectation – TULLOCK's 'tansitional gains trap' [TULLOCK, 1975].

To avoid having to acquire the surplus production themselves, governments can of course encourage their disposal on world markets by granting export subsidies, and this has been done to a greater and lesser extent by the EC and the United States, respectively. Apart from political repercussions, governments are constrained in such endeavours by the GATT Subsidies Code (*'Article XVI'*) which, while permitting export subsidies for most primary products, forbids signatories thereby to obtain 'more than an equitable share of world export trade in such products' and to subsidize 'in a manner which results in prices materially below those of other suppliers to the same market'[4]. The vague wording of these rules and the absence of GATT case law giving them precision, has permitted considerable latitude for the disposal of subsidized sur-

4. Article 10 of the Agreement on Interpretation and Application of Articles VI, XVI and XXIII of the General Agreement on Tariffs and Trade. See GATT [1980, p. 69].

pluses. Nevertheless, government inventories have still built up and, once in this situation, governments are additionally constrained by long-standing GATT commitments requiring 'consultation' and the 'avoidance of prejudice to the interests of other Contracting Parties', in the disposal of stockpiled commodities [GATT, 1955, pp. 50–51].

Large inventories of surplus commodities are costly to maintain, a political liability to governments and are perceived by farmers as increasing the vulnerability of their subsidies. Moreover, 'farmers often argue that government stocks "hang over the market" and depress the price. They therefore lobby to ensure that government stocks are released in a manner that does not depress the price' [Council of Economic Advisors, 1984, p. 112]. Governments have attempted to dispose of their stocks by limited low-priced export sales (often to the Eastern bloc); donations to needy domestic groups or developing countries; and sometimes by transforming them into non-competitive products or, as a last resort, destroying them[5].

It is at this point that we turn to the question of how and why international barter might be used to dispose of domestic support-price surpluses. Ample precedents exist with the US Barter Program of the 1950s and 1960s; more recently, the United States has been bartering some of its massive government inventories of dairy products.

1. Evasion

It has often been noted that the lack of transparency in barter makes it a vehicle for disguising cut-price sales in world markets. This applies not so much to the actual movement of goods – barter should not be confused with smuggling – but rather with respect to the true prices at which trade takes place. In a pure barter transaction, prices and values are of course not specified at all, the exchange being defined solely in physical terms (say, kilos for litres). In a 'monetized' barter transaction, the nominal price of exports in itself provides no guide as to whether the

5. The disposal of surpluses sometimes has its humorous side. It was reported in the European press some time ago that part of the EEC's sugar mountain was being 'transformed' for the consumption of bees by adding garlic – thus spoiling it for human consumption. This was found to give the bees indigestion, however, so after some experimentation, charcoal was also added to the garlic-flavoured sugar, apparently with success.

goods have been subsidized. For this, it is necessary to know what price was implicit in the import side of the transaction, and how that price relates to the world market price.

In the context of a GATT dispute, the lack of price transparency afforded by barter would make it more difficult to determine the size of an export subsidy and whether the price was 'materially below' those of other suppliers to a given market. The calculation of the effective market prices should in principle be possible if the volumes in the transaction are known. But benchmark market prices are not always readily obtainable, especially for manufactured goods, which are sometimes included on one side of a commodity barter deal. Moreover, the reciprocal nature of the transaction itself may not be known. Many barter-type transactions consist of two independently financed contracts bound only by a 'protocol'; the trade flows need not be of equal value and they may occur with a considerable time lag[6].

A second possibility is that the bartering of domestic surpluses might provide a legal defence when unlinked sales would not. For example, in the case of a barter deal in which a country's nominal export price for a certain commodity is equal to its domestic support level, and the nominal price of the goods received in return is correspondingly high, that country could attempt to invoke GATT logic to argue that the barter transaction as a whole involved a production subsidy (which is not bound by 'equitable shares') combined with an import subsidy (which is admissable). While the possibility of such interpretations prevailing cannot be ignored – given the lack of precedents and the absence of precision in the GATT codes [LIEBMAN, 1984] – *Article XVI* does apply to 'any form of subsidy which (directly or indirectly) operates to increase the export of any primary product from its territory' and since the alleged import subsidy in a barter deal is *conditional* upon export, it would presumably be covered. Indeed, it has been argued that there is nothing peculiar to international barter which would allow it, once identified, to exploit any loopholes in the General Agreement (which could not be exploited in conventional transactions)[7].

6. Despite such difficulties, it should be obvious that the effective price of exported surpluses will never *exceed* world market prices and thus will normally be below domestic support-prices.

7. See, *Countertrade Outlook,* Vol. II, No. 16, April 23, 1984.

Thus we would not expect that governments burdened with domestic price-support surpluses would choose to use barter primarily for evasive purposes. Even if such a tactic were successful in a GATT context, the political ramifications and economic retaliation which would ensue – given the displacement effects on other countries' exports which must occur – could be a weighty deterrent. This is supported by the recent experience of the United States in bartering surplus dairy products for Jamaican bauxite. The dairy products were nominally sold at world prices, which were about one-half of the prices at which the US Government had acquired them – implying a 50 per cent export subsidy – and the quantity is sufficient to meet the total import requirements of Jamaica for several years[8]. The displaced 'traditional' suppliers to this market (Canada, France and New Zealand) would thus presumably have had a good case to make before the GATT. The absence of any complaint was due to the fact that the US Government had taken the precaution of consulting these countries in advance, as required by the GATT resolution on the disposal of surplus commodities, referred to previously [VOGT, 1983, p. 30].

In fact, the main motive for the barter deals with Jamaica appears to have been to give economic support to an important Third World ally[9]. The sales had only a minor impact on the dairy surplus, accounting for less than 5 per cent of the inventory. The use of barter by the US Government, rather than it simply buying all the bauxite for cash as the Jamaicans had initially requested, was due to the insufficiency of funds available to the administration of the Strategic Stockpile, to which the bauxite was destined. Indeed, the inadequacy of the Stockpile, combined with the existence of large agricultural surpluses, has been used by domestic interests as the *raison d'être* for the reactivation of a barter program in the United States. Barter is variously seen as a means of

8. Price and volume details were obtained from: WILLIAM R. RANDOLPH, Chief Negotiator, Barter and CCC Sales, *Statement Before the Conference on Countertrade and Barter,* US Chamber of Commerce, 29 November 1983.

9. Note the following excerpt from President REAGAN's announcement of the transaction: 'While improving our own defense posture, this program will contribute to Prime Minister SEAGA's strategy for Jamaica to rely to the maximum extent possible on production and exports to fuel its economic recovery. The stability and economic strengths of Jamaica are important to our national security interests in the Caribbean' [US Executive Office of the President, Press Release, 9 December 1981].

increasing the effective budget of the Stockpile authorities, while at the same time reducing stockholding costs (which are generally higher for agricultural than for mineral commodities) and perhaps alleviating pressure to reform the agricultural support system[10].

2. Market Segmentation

Barter is sometimes attributed with the facility of expanding a country's exports beyond the level that could be achieved in multilateral trade (a feature called 'additionality' in countertrade jargon). This usually amounts to using barter to segment markets, quarantining lower-priced sales to more price-elastic or low-income markets[11]. Given governments' concern that the disposal of their surpluses should not merely displace other sales, this could provide a motive for engaging in barter. However, it is not clear how barter per se could assist in the difficult task of market segmentation. Bartered products frequently find their way onto third markets. The initial purchaser can of course be contractually obliged to dispose of the goods locally (as in a conventional sale) but it cannot, without incurring substantial costs, ensure that all subsequent purchasers will also sell locally until the goods are consumed. A government buyer could in principle get around this difficulty by placing export restrictions on the goods – especially if it were a developing country with a comprehensive trade-licensing system – but, again, this need not be specific to barter.

The other problem, even if the physical quarantining of the bartered goods can be assured, is to find a market where the sale will displace neither other imports nor domestic production. Failing this, the general equilibrium effects would rebound on the country's conventional exports.

From the viewpoint of market segmentation, barter actually has a handicap over normal sales in that it requires, to use JEVONS' famous expression, a 'double coincidence of wants'[12]. This is mitigated by an

10. At the end of 1983 there were six Bills before the US Congress with provisions for Government barter of price-support surpluses. See VOGT [1983].

11. 'Use of barter agreements allows "sales" of surplus commodities through specific price concessions to selected countries. In contrast, selling such surpluses on the world market could result in general price reductions' [RODOTA, 1983, p. 27].

12. 'There may be many people wanting, and many possessed of those things wanted; but to allow an act of barter, there must be a double coincidence, which will rarely happen' [JEVONS, 1875, p. 3].

ability to resell in third markets. But in recent instances of United States government barter, and in present proposals for a new programme, the goods received in exchange are intended to meet the specific needs of the Strategic Stockpile. In these circumstances, the problem of achieving a coincidence of wants becomes more intractable and will limit the amount of barter that can take place.

Abstracting from the special features of the US situation, a likely reason for governments turning to barter arrangements for the disposal of their price-support inventories, is the insistence of the *purchasing* country on this type of transaction[13]. This is especially relevant to the search for new outlets among developing countries, some of which, for different reasons, may have accumulated 'surpluses' of their own.

II. INTERNATIONAL PRICE CONTROLS

While many primary commodities lack competitive markets in national economies, there are also several international commodity markets in which competition is constrained. The constraint of international competition essentially takes two forms: (a) 'overt' producer cartels of the OPEC type and (b) international commodity agreements, between producers and consumers as groups, the stated objective of which is to stabilize world prices.

1. International Cartels

For each member of an international cartel, expected long-run profits will be greater with the cartel than under competition, or it wouldn't have joined in the first place, but profits could be maximized by discreetly under-cutting the cartel price. The likelihood of a member doing so could be expected to rise if:

(a) its output were 'small' relative to total cartel output;
(b) there was a decline in a members' share of total supply, or it was dissatisfied with its quota;

13. It was recently reported that 'the Libyans have threatened to phase out imports of Irish cattle and meat carcases unless Ireland takes reciprocal imports of Libyan crude' (*Petroleum Economist*, May 1984, p. 192).

(c) the demand for the commodity was declining, but there was a lag in cartel-price or quota adjustment;
(d) there was a sudden rise in a members' discount rate (preference for present over future income).

While only condition (c) will actually result in inventory accumulation, all cartel members will generally have surplus *capacity* at the high cartel price; hence a temptation to cheat. The problem is to avoid detection and, once again, it is in this context that barter may be used.

A number of OPEC members have been actively engaging in barter in the last few years. While estimates must be as heavily qualified in this area of barter as in any other, market specialists consider that 10–20 per cent of OPEC's oil exports were bartered in 1984. Those countries which have allegedly been involved are Iran, Iraq, Qatar, Abu Dhabi, Libya, Nigeria and Indonesia, and there has been a single, well-publicised deal by Saudi Arabia[14]. Most of these countries satisfy condition (a) above – Saudi Arabia and Iran being the exceptions – and all have been suffering from (c) since at least 1980. (Lags in the downward adjustment of official prices in the face of declining demand have made OPEC quotas redundant in some countries[15].) Condition (d) is clearly met by Iraq and Iran, as a result of their war-finance needs, but also by Nigeria and Indonesia, the two poorest OPEC members, whose net incomes have been badly hit by the oil-demand/debt squeeze. Iran also meets condition (b), as a result of supply disruptions during the 1979 revolution as well as subsequent embargos, and Libya's output too has suffered in the latter respect[16].

Bauxite is another cartelised market in which increased barter activity has been taking place recently. A major participant has been the Jamaican Government, which has a controlling interest in its domestic industry. Jamaica acted as a price-cum-tax leader after the *International Bauxite Association* (IBA) was formed in 1974, and thus presumably would have a special interest in disguising any discounts [LABYS, 1980].

14. See *Petroleum Economist* (May 1984), which provides the 10–20 per cent estimate, *Middle East Economic Digest* (20 July 1984) and *Financial Times*, London, various issues.

15. *ABECOR Country Report: Qatar*, Barclays Bank Group, London, April 1984.

16. On the impact of the US embargo on Libya's exports, see *Petroleum Economist*, April 1984, p. 154.

Such an approach is facilitated under the IBA by the absence of quotas. Although available price information on Jamaica's barter deals with the US Government does not reveal an effective discount [VOGT, 1983] this was a special, essentially non-market arrangement. No price data are available for similiar deals with private US corporations [DIZARD, 1983].

In contrast to the barter of domestically subsidized surpluses, barter by cartel members – to the extent that it expands a commodity's total supply and weakens its price – is a welfare-increasing phenomenon in the world economy. It constitutes a sort of 'backdoor' competition, with the net loss to producers being outweighed by the consumers' gain. For individual cartel members engaged in barter, their net gain or loss will depend on: how long their activities remain undetected, the reduction in price caused by their action, and the actions of other members. If, instead of cutting back their own supply to support the price, other members attempted to maintain revenue by price-cutting too, then the final result may be close to that under competition and all members would be worse off, even in the short term.

2. International Commodity Agreements

A similar analysis to that for overt cartels can apply to international commodity agreements in certain situations. These agreements generally make use of buffer stocks and/or export quotas in an attempt to keep prices within a certain range. Arrangements of this sort exist for coffee (through export quotas alone), cocoa, rubber (buffer stocks), sugar and tin (both). In addition, there is the GATT's International Dairy Arrangement, which stipulates minimum prices for a range of dairy products[17].

In practice, such arrangements frequently attempt to hold average (trend) prices above market levels. In fact, the design of most commodity agreements is inherently asymmetric in this respect: they have means of keeping prices *above* some minimum level (export quotas) but not *below* any maximum. (This is not to suggest that a quota system should be used to hold prices down. When prices are rising, each producer will have

17. The Dairy Arrangement was negotiated within GATT during the Tokyo Round. See GATT, 1979. For details on how the other five arrangements have functioned in recent years, see the United States International Trade Commission's annual report, the *Operation of the Trade Agreements Program.*

sufficient incentive to expand supply without needing to be told to do so.) Thus, most international commodity agreements function like cartels when times are 'bad' for them, reverting to greater competition only when times are 'good' (that is to say, bad for the consumer).

When prices are falling, an international commodity arrangement can generate the following kinds of 'surpluses': (a) a buffer stock build-up, and (b) once the buffer is full, domestic supplies in excess of export quota. The second situation is similar to that in the overt cartel, as are the incentives and disincentives facing individual members of the agreement. The problem of 'cheating' can actually be more acute under commodity agreements, because they usually comprise more producers than cartels, making detection more difficult (this is often an important reason why they are not proper cartels to begin with). Moreover, buffer stock action, without cartelised prices or quantities, can actually exacerbate the surplus problem. To the extent that it has an impact, while the budget lasts, it holds prices above what would be the free-market level. If this is not sustainable in the face of say, secularly declining demand, then a false signal has been given to producers which keeps output higher than it would otherwise be.

Faced with conflicting collective and individual interests, some producers may again see barter as a way out, given its lack of transparency. But shipments are shipments, whether they be through barter or not and, as just noted, it is difficult to see how barter could evade *quantitative* controls any better than conventional sales. Nevertheless, it remains true that, to the extent of available information on barter in general, it appears to be relatively common for commodities covered by international agreements[18]. Whether in this situation barter would be welfare increasing, as within cartels, depends on the relative costs of any extra price instability it creates, versus the consumption gain from lower average prices.

18. See OUTTERS-JAEGER [1979] and VOGT [1983]. The following exerpt from the press is typical: 'His company recently sold about US$ 45 million worth of fertiliser to the Indonesians for the same value of *rubber, cocoa, coffee* and other agricultural products' (*South*, May 1983, p. 61, emphasis added). As evidence of the relative transparency of the displacement effects of barter on other exporters, 'the Malaysians... claim they have lost customers for their rubber and quite a few other commodities to Indonesia because of it. As a result, the Malaysians have begun negotiating their own countertrade deals' [COOPER, 1984, p. 37].

III. EXCHANGE CONTROLS

It is commonly held that the governments of developing countries have been obliged to resort to barter because of 'liquidity shortages' [see, for example, McVey, 1981]. This is an unsatisfactory explanation of the use of barter, however, for if goods are available for barter they could presumably be sold for hard currency, thus directly alleviating the liquidity shortage itself. To the extent that exportable surpluses and liquidity shortages do coincide, therefore, the real explanation probably has more to do with the existence of exchange controls and overvalued currencies.

Rigorous exchange controls are a common phenomenon in developing countries. When inflation differentials or basic shifts in the terms of trade put downward pressure on the exchange rate (the diminution of reserves) this is often met by import and payment restrictions rather than devaluation. While some economic arguments may be invoked to support such an approach, the policy-makers' main concern is often of a more political nature. As discussed by Cooper [1971], devaluation has income-distributional consequences which may be strongly resisted.

An overvalued currency – that is, an official rate of exchange at which the underlying demand for foreign exchange persistently exceeds its actual supply – will of course finally result in the opposite phenomenon to that which concerns us here, namely a *shortage,* not a surplus, of exportables. In the short run, however, a sudden overvaluation of the domestic currency (a sudden rise in domestic costs without a compensating depreciation) can price existing production out of world markets and, where lengthy supply-adjustment lags are present, as is the case for many agricultural commodities, a situation of excess production could persist for some time. Producers may resist selling this output at a reduced relative price in domestic currency when they know that the relative world price is unchanged and that their problem results from or has been exacerbated by government policy. They may hold onto their stocks in the hope of an official devaluation or, failing that, some compensation from the government.

The resulting problem for governments is not merely political – one group demanding compensation for the consequences of a policy demanded by another – but also economic. In the short term, there are 'surpluses', which are not really such in terms of their shadow exchange-market prices; in the long term, resources will leave a socially productive

industry. A government would thus be justified on both counts, given currency overvaluation as a parameter, for assisting exporters. A direct subsidy may not be feasible because of its transparency and budgetary implications. But a barter deal could achieve the desired result. By contracting with a foreign trader to export highly-priced domestic goods in exchange for a premium on the associated imports, the government would be able to deliver an implicit subsidy to export producers paid for by a tax on imports. A subsidy-tax combination of this sort is equivalent to a selective devaluation of the currency, bringing relative domestic prices into line with world market prices for the products concerned.

It would not be necessary to have government involvement for a barter solution to emerge in these circumstances, provided that private domestic traders were permitted to engage in barter. Foreign exchange controls can create large scarcity rents in the disposal of imported goods. Exporters would thus have every incentive to bring in goods, rather than hard currency at the low official exchange rate, in exchange for their produce. They need not engage in the actual transaction themselves, but could arrange it all through a trader. In fact, the most convenient arrangement would be to sell their goods to a local importer. A trader who could not obtain an adequate foreign exchange allocation would be prepared to pay more than the official rate for the necessary foreign exchange, and an alternative to acquiring hard currency in the black market would be to buy local goods that are marketable overseas. The 'loss' taken by the trader in disposing of domestic goods can be seen as the equivalent of a premium that he would pay for hard currency if he could get it. Where there are penalties for dealing in the black market, but none for countertrading, the latter could actually be the preferred alternative, its (risk-inclusive) transaction costs being lower.

An early documented case of barter being used explicitly for de facto devaluation purposes occurred in Chile during the 1930s, when galloping inflation under fixed exchange rates prompted the Government to introduce special barter rates of exchange to ensure the continuity of exports. 'As a consequence, the "barley dollar", the "oats dollar", the "wine dollar" and other types of dollar appeared in the market at rates as high in some cases as 90 peso per dollar'[19], twice the official rate. In

19. United Nations, Economic Commission for Latin America: *Trade Trends and Policies in Latin American Countries*, E/CN 12/165, May 1950, p. 107.

recent years, increased barter activity has also been taking place in regions where inflation has been escalating. For example, in Latin America the average annual rate of inflation (in IMF statistics) rose from 58 per cent in 1980 to 162 per cent in 1984, with some countries recording rates well above 200 per cent. It is true that countries such as Argentina and Brazil have accommodated their exchange rate policies to their hyperinflations in the last few years, even to the extent of recording effective devaluations of their currencies. Nevertheless, in Brazil, exchange controls have been greatly tightened recently and the gap between the official and black-market exchange rates has widened[20]. Thus there would still be an incentive to use countertrade for arbitrage purposes and private traders have apparently been requesting permission from the government to engage in countertrade[21].

The overvalued-currency explanation for countertrade also finds support in the frequent claims that barter exporters 'ask too much' for their goods, requiring comparable mark-ups on the trading partner's goods. In reality, they may not be asking too much at shadow exchange rates. Indeed, in some cases governments may be unaware of the true nature of the problem in their export sector. They may see surplus capacity or inventories as a sign of poor marketing expertise, and barter is in fact often justified as a marketing ploy. To the extent that it is recognised to result in a mark-up on imports, this may be accepted as simply an implicit 'marketing fee', when it also includes a margin for the discounting of 'overpriced' local exports in world markets.

An ad valorem export subsidy combined with an equal import tax is (ceteris paribus) equivalent to a devaluation of the currency at the same rate. Thus, if a direct devaluation is ruled out, a trade subsidy/tax package is a second-best alternative, in the Corden-ranking sense. If, however, explicit subsidies and taxes are ruled out in turn, implicit subsidies and taxes such as those achieved in barter transactions, *may* constitute a third-best, still improving a country's economic welfare compared to a 'do nothing' policy.

20. See *International Currency Review*, Vol. 15 (1983), No. 3, September, p. 66 and 'Brazil imposes new controls on currency', *Wall Street Journal*, 1 August 1983.

21. *Business Latin America*, July 1983, pp. 209, 227. Note that the attraction of countertrade for arbitrage purposes would not be restricted to primary commodities.

This conclusion warrants an emphatic qualification for two reasons:

(a) *Transaction costs.* Barter has much higher transaction costs than conventional multilateral trade, arising not only in the negotiation of a given exchange (the haggling over details) but, more importantly, in the search for viable pairs of trade flows. This problem is minimized when dealing through specialist international trading firms and is maximized when governments place constraints on which goods can be bartered and where[22].

(b) *Selectivity.* A major problem in a barter approach is to know what the tax/subsidy rates should be. The theory calls for a uniform across-the-board rate, which to be optimal should equal the degree of overvaluation. Even if a government knows roughly what this is, it cannot be sure that there will be no 'true' subsidy to different activities. In other words, some goods will be overpriced to the extent of the overvaluation only, while others will be relatively high-cost activities, in which the country does not have a natural comparative advantage. The barter approach could be used to obtain export sales of both, but this is clearly not desirable in the second case. (This problem does not arise with an explicit uniform subsidy.) If, however, the government chose to correct the exchange market distortion for only a few commodities, it runs into the Lipsey-Lancaster problem. That is, the tax/subsidy must apply to all potential importables and exportables if it is to achieve the same result as a currency devaluation. Applying it to a subset of trade need not make a country better off[23].

IV. CONCLUSION

It has been argued that the phenomenon of 'surpluses' observed in many primary commodity markets can be explained by government controls which inhibit the market-clearing function of prices. The raison d'être of international barter in this situation is that it may permit a price adjust-

22. When Indonesia instituted a Romanian-style countertrade scheme in January 1982, all trade covered by the scheme came to a complete standstill for 10 months, until some of the harsher rules were relaxed.

23. The appropriate policy might be to *allow* barter on any transaction which private agents considered to be to their advantage. It is then in a sense equivalent to the availability of an explicit across-the-board subsidy/tax; the difference being the increased transaction costs.

ment which otherwise, for institutional or political reasons, could not take place[24]. It is also apparent, however, that barter cannot be a viable permanent solution to the problem of policy-induced commodity surpluses. *First,* in the case of those surpluses stemming from domestic price-support measures, barter cannot be expected to eliminate the potential political and economic repercussions of export disposal. A durable solution will require some combination of *domestic* price and volume adjustment[25]. *Second,* in the case of international cartel-type agreements, either: (a) barter activity will proceed to the point where the cartel effectively breaks down (perhaps the only circumstance in which barter unambiguously promotes world trade and welfare!); or (b) it will be arrested by a change in demand conditions and/or cartel policy with respect to pricing and quotas; or (c) the offending member countries will somehow be prevented from using the practice[26]. *Finally,* in countries where there are sizeable distortions in foreign exchange markets, spontaneous countertrade may under certain conditions reduce the costs of these distortions and lead to some expansion in trade, but the very fact that such inherently costly transactions could be resorted to at all is an indication of the greater benefits to be derived from macroeconomic adjustment. In this sense, the much maligned 'conditionality' require-

24. Some writers [for example, O'HAGAN 1962] have referred to a different type of 'surplus': goods *voluntarily* withheld from traditional markets to avoid depressing prices. There may be two motivations for such an action. One would be to maximize export revenue by selling incremental output at lower prices in price-elastic markets. This has already been discussed in the context of price-support surpluses. A second motivation may have more to do with domestic politics than with economics; namely, that a government may wish to disguise from its own electorate the extent to which the value of domestic produce has declined on the world market, especially if the domestic price is kept artificially high.

25. Indeed, the prospect of this occurring seems to have increased recently, one instance being the introduction of supply restraints on dairy production in the EEC (*The Economist,* 7 April 1984, p. 53). Quota schemes are an unsatisfactory solution, however, for quota levels are also politically determined and are thus vulnerable to lobbying pressure (apart from their considerable inefficiency).

26. This is illustrated by the recent experience of Indonesia, which had been bartering crude oil at official nominal prices, for refined petroleum products at above-market prices. This resulted in production some 20 per cent above quota levels and drew the attention of the OPEC authorities, who requested that the Government desist from its (effective) discounting practices (*Far Eastern Economic Review,* 26 April 1984).

ments of the International Monetary Fund constitute a force for the diminution of barter by developing countries and not, as is sometimes suggested, the reverse.

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SUMMARY

An important part of the recent escalation in international barter, has been government sponsored transactions involving allegedly 'surplus' primary commodities. In seeking to explain this phenomenon, the present article looks at three forms of government intervention – domestic price supports, international cartel-type agreements and foreign exchange controls – which, by impeding the market-clearing function of the price system, can give rise to surpluses. It reveals how barter can be used to clear constrained markets through de facto price adjustments, and assesses the economic effects. Reasons are offered for the unlikelihood of barter yielding a durable solution to the problem of policy-induced surplus commodities.

ZUSAMMENFASSUNG

Ein bedeutender Anteil des in letzter Zeit zu beobachtenden Anstiegs des internationalen Tauschhandels betraf durch Regierungen geförderte Transaktionen, bei denen angebliche Überschüsse von Rohstoffen abgesetzt wurden. Beim Versuch derartige Handelstransaktionen zu erklären, untersucht der vorliegende Artikel drei Formen von Regierungsintervention: einheimische Preisstützung, internationale, kartellartige Abmachungen und Devisenkontrollen. Alle diese Regierungsmassnahmen können Überschüsse hervorbringen, da sie markträumende Preise verhindern. Der Artikel zeigt weiter wie der Tauschhandel eingesetzt werden kann, um in ihrer Funktion beeinträchtigte Märkte durch de facto Preisanpassungen zu räumen, und bewertet die ökonomischen Auswirkungen. Abschliessend werden Gründe angeführt, die es als unwahrscheinlich erscheinen lassen, dass der Tauschhandel zu einer dauerhaften Lösung der wirtschaftspolitisch verursachten Rohstoffüberschüsse führt.

RÉSUMÉ

La prolifération récente des opérations internationales de troc est imputable en grande partie à des transactions portant sur des produits primaires prétendument excédentaires, patronnées par des gouvernements. Cherchant à expliquer ce phénomène, le présent article examine trois formes d'interventions gouvernementales (sou-

tien des prix intérieurs, accords internationaux s'apparentant à des cartels et contrôle des changes) qui, en bloquant la fonction de désengorgement des marchés qu'exerce le système des prix, peuvent engendrer des excédents. Il montre comment les opérations de troc, en donnant lieu à des ajustements de facto de prix, permettent de désengorger des marchés saturés et il en évalue les effets économiques. Il avance des raisons pour lesquelles il est peu probable que le commerce de troc apporte une solution durable au problème des excédents de produits de base induits par des politiques commerciales.