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PERSPECTIVE FOR TINPLATE PRODUCTION AND CONSUMPTION IN DEVELOPING COUNTRIES 1970-1980 1/

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We regret that some of the pages in the microfiche copy of this report may not be up to the proper legibility standards, even though the best possible copy was used for preparing the master fiche.

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Recent technological changes affecting tinplate.

1. Tinplate has been described as the "aristocrat of the steel industry". That statement was based on the justifiable view that tinplate is one of the most technologically advanced products of modern industrial countries. Research and development have led to a stream of innovations, occasionally major innovations.

2. Tinplate in the advanced countries is characterised by large-scale production, the maintenance of high standards at high speed, and a high degree of automation. Product and process have been subject to continuous refinement for many years. The ability to make a success of tinplate production, therefore, is a considerable challenge to developing countries.

3. Two major innovations have occurred in the sixties, double-reduced tinplate and tinfree steel. Both are more important in the U.S. than in other industrial countries. Double-reduced tinplate is a cheaper and stronger type of thin plate which economises in steel. Tinplate has been made thinner apart from the introduction of double-reduced plate, but differences between double-reduced tinplate and conventional tinplate warrant treating the former as a major development.

4. Tinfree steel represents, as the name implies, a breakaway from tin as the protective coating on steel. It is a more recent innovation than double-reduced tinplate, separate

figures for U.S. production appearing only in 1969 in the Iron and Steel Institute's bulletin. Tinfree steel is the outcome of years of experimenting with substitutes for the tin coating, the object being a container material which would be technically and economically satisfactory for as much as possible of the tinplate market. Research has been motivated by the natural desire to economise in a relatively expensive metal, with a violently fluctuating price and subject, in the opinion of steel producers, to supply uncertainties. These views have been particularly prevalent in the U.S.

5. The market situation in the U.S., the relationship between steel producers, can makers, and canners, has created a forcing house for tinfree steel. This situation is not reproduced in other industrial countries, but there, too, tinfree steel is likely to win, eventually, a substantial share of the tinplate market. Progress, however, will be slower than in the U.S.

6. Technically, tinfree steel is not superior to tinplate, which is a tested, reliable, and attractive container material for a vast range of foods and other products. Developing countries, therefore, are not producing a second-rate product with a dated technology when they instal tinplate capacity. Unless the price of tin rises substantially and supplies become very uncertain, their future demand does not yet point to tinfree steel rather than tinplate. Unlike the U.S., developing countries do not have a situation where steel producers are squeezed by can-makers, and can-makers by canners. They do not have a large beverage market which is currently the main target

for tinfree steel in the U.S. The price differential in favour of tinfree steel is less significant than the potential cost-saving with existing capacity from mastering the advanced techniques of modern tinplate production. While success with tinfree steel will certainly lead to its eventual production in developing countries, this is not a case where a developing country would be at any disadvantage, certainly a significant disadvantage, so far as the end-product users are concerned.

Tinplate production.

7. Before the 1939-45 war the only developing country with any tinplate capacity was India. Apart from the highly industrialised countries the only other producer was Spain. India averaged 30,000 tons in the late thirties, Spain reached a peak pre-war of 35,000 tons in 1939.

8. During the late forties production began in Brazil, Mexico, and Chile. There was a long interval before it spread to other developing countries. Turkey and the Philippines installed tinplate capacity in the sixties and reached a sizeable volume of output in relation to their consumption before the end of the sixties. In the last few years capacity has been installed by Argentina, Colombia, and Venezuela. In Europe, Greece and Portugal are preparing to begin production. Plans to produce tinplate in the seventies have been reported from Algeria, Thailand, Malaysia, and Egypt. Several other developing countries, possibly Taiwan and South Korea, look like potential producers by the late seventies.

9. It is evident that tinplate production, at one time highly concentrated in a few industrial countries, is spreading widely. So far, however, the bulk of world output comes from five countries, and it does not seem likely that this situation will change much for many years.

10. The rate at which production has grown in developing countries has differed greatly. Starting difficulties seem common, not unexpectedly in such a sophisticated part of the steel industry. Production tends to grow slowly, which means high capital costs per unit of output, at least in the early years.

11. Since the thirties the growth of Indian output has been slow. In the late sixties it was barely double the pre-war level. Brazil averaged 40,000 tons in the early fifties and has increased output since then about five-fold. Mexico did not exceed 40,000 tons until 1958, but provisional figures for 1969 show a three-fold increase. Spanish production as recently as 1960 was only 13,000 tons. By the late sixties it rose to around 100,000 tons.

12. Total production in developing countries, according to International Tin Council figures, rose from 122,000 tons in 1950 to an estimated 580,000 tons in 1969. The latter volume was only about half of Japanese output alone. The largest producer, Brazil, produced less in 1969 than Belgium, the Netherlands, or Australia. Australian production rose from 13,000 tons in 1957 to 209,000 tons in 1965. Brazil took over twenty years to reach an output which Australia reached in six, and Australia exported about 9 per cent of its output by 1969. This puts the position of developing countries in perspective.

13. In view of the importance attached to import substitution by developing countries it is interesting to consider the growth of production in relation to the behaviour of tinplate imports. Although there have been substantial fluctuations in output by the countries listed in Table 1 , the group as a whole

has not had a secular growth of imports. At the end of the period, in 1967-68, imports were appreciably lower than at the beginning, 1963-64, in spite of a large increase in consumption.

16. The extent of import substitution can be gauged from the experience of individual countries. Mexico imported little after 1937, but there has been some increase in recent years. Chile's imports were negligible throughout the fifties and early sixties. Again, imports have tended to increase in the mid-sixties. Turkey cut imports very quickly after 1964. Imports into the Philippines have also been falling in the last few years. Brazil's imports have fluctuated greatly, but have been much lower in the sixties than in the fifties.

Factors determining production in developing countries.

17. There are several reasons why developing countries commit scarce capital and skilled labour to this highly sophisticated and capital-intensive branch of steel production, reasons which may be expected to influence others in the seventies.

18. Many developing countries have a canning industry which packs home-produced raw food. Some countries in Latin America have been canning meat for decades for a long-established export market. Like industrial countries, the developing countries recognise that the tin can is an ideal container for storing and transporting perishable foodstuffs. It has both economic and hygienic advantages. There is also a wide range of non-food uses for tinplate, appropriate to even the least developed

countries. Paints and oils are obvious examples.

17. When a developing country begins canning products, it is committed to the import of tinplate, a high-valued steel product, or of tinplate containers. Trade in containers is generally a minor part of trade in tinplate. Usually tinplate is imported for a local can-making industry. Other materials for the finished can may also have to be imported.

18. The cost of tinplate or of the can varies a good deal as a proportion of the cost of a canned product, depending on the nature of the product and the type of container. An FAO study has put the value of the can in the canned beef packs of selected plants in some developing countries as high as the 50 per cent range. With canned inedible products such as paints, tobacco, and aerosol hair lacquer the can cost is substantially less than this, down to a few per cent of the retail cost, around 15 per cent in the case of the aerosol can. Generalization is difficult.

19. Without domestically produced tinplate developing countries may find that the total import content of their canned output is a considerable item in their import bill. Moreover, capital equipment is expensive and must be imported. Since import substitution is a strong element in commercial policy, it is hardly surprising that tinplate is regarded as a likely source of import saving.

20. At that stage of development the balance of advantage turns in favour of domestic production of tinplate cannot be precisely defined. Some small developed countries still produce no tinplate, although they have a large can-making and canning industry. Sweden, Switzerland, and Denmark are in this position. Sweden's apparent consumption of tinplate in 1960 was 70,000 tons, compared with 36,000 tons in 1958. Only eleven developing countries listed in the ITC Statistical Bulletin exceeded 36,000 tons in 1958. Fourteen appeared to consume less than 10,000 tons.

21. The three small developed countries have obviously chosen specialization on other steel products. Presumably the gains from specialization are held to be greater than the cost of the import content of the container industry's output. In strictly economic terms, their comparative advantage presumably does not lie in tinplate.

22. For much less industrialized countries it is very difficult to know what comparative advantage means in practice, which type of production to develop, and how to allocate resources. Canning plants do not need to be on a large scale, although they use expensive imported equipment. The advantages of canning locally-produced goods would be difficult to refute. The canning industry encourages the growth of a market economy in agriculture, raises agricultural incomes, leads to improved standards of cultivation and products, and supplies foods with higher standards of hygiene.

.5. No developing country, so far, has installed tinplate capacity without having an established steel industry. It seems reasonable to argue that the key determinant should be the time required to train a skilled labour force, including managerial and supervisory staff in the steel industry. Thereafter it is a question of the actual and prospective relationship between the minimum economic scale of a tin mill and tinplate consumption, and secondly the steel industry's ability to produce tinplate of a quality and price which is reasonably comparable with those of imports.

6. There can be no question of survival for local tinplate production since commercial policy will simply be designed to give the necessary degree of protection from imports. However, if local tinplate is too expensive and inferior in quality, the costs of the can-maker and the canner are raised. If the canner has to compete in an export market, a cost disadvantage means a loss to the canner, food import. Even if there is no loss to the producer, the cost of living would fall on some part of the economy. Whatever protection the tinplate producer needs has to be set against the gain from lower imports of tinplate. Further, the higher the canners' costs, the slower the growth of the domestic market for canned products.

7. These points must obviously influence the planners in a developing country, although import substitution generally tends to be weighed more heavily on the gains than on the costs side.

As far as tinplate is concerned, it does not appear from the rate at which it has spread geographically that developing countries have been over-hasty in starting production. Even now only six countries have sufficient production to be recorded in the ITC Statistical Bulletin.

Tinplate Consumption.

86. The statistical picture of consumption in a number of developing countries is given in Tables 2 and 3. There have been big differences in the rate of growth of consumption in different countries. Argentina consumed less in the late sixties than in some earlier years. Indian consumption has not grown much since the mid-fifties. Brazil is still the largest consumer, but total consumption has fluctuated considerably and has grown much less than in some other countries during the sixties.

87. Several countries have achieved very marked increases in consumption since the fifties. From around 50,000 tons per annum in the mid-fifties, consumption in Mexico is estimated by the ITC to have risen to around 140,000 tons by 1968. Among the smaller consumers, Iran has apparently increased consumption from around 6,000 tons in the fifties to over 20,000 tons in 1966-68. Venezuelan consumption rose sharply in the late fifties, since when it has increased by around 50 per cent.

88. There are also big differences in per capita consumption. Venezuela and Puerto Rico have a very high per capita consumption for developing countries. In Venezuela there seems to have been a big increase in the output of canned food between the late fifties and early sixties, according to ITC data. Venezuela in fact has a per capita consumption comparable to that of West Germany. However, since West Germany has a much larger net import of canned food, the direct and indirect tinplate consumption is higher than in Venezuela.

89. Indian per capita consumption is extremely low, but is comparable to that of the other two countries with the largest populations.

Pakistan and Indonesia. If these three were to approach the per capita consumption of, say, Brazil, there would certainly be a very large increase in total consumption.

30. Information about the distribution of uses of tinplate is limited to a few industrial countries. In some countries the container business takes well over 90 per cent, around 96 per cent in the U.K., which accounts for about 45 per cent of world consumption. A rough estimate of the non-container uses would be about 7 per cent in the world as a whole. In developing countries with a small degree of industrialisation it is probably less. In many cases their tinplate consumption by the food canning industry is shared between exports and the domestic market. It may be assumed that their non-food packaging consumption is entirely for the domestic market.

Factors determining consumption in developing countries.

31. In industrial countries there appears to be a high correlation between the growth of real consumers' expenditure per capita and apparent tinplate consumption per capita. As people become better off they spend more on processed foods, and more recently on canned beverages. Consumption of non-food canned products like paints, motor oils and aerosols, also rises. These are typical objects of consumer spending in modern high-income urbanized societies. The element of convenience in canned products has become an increasingly important selling point in the last two decades. The U.S. has been well ahead of other industrial countries in this respect. The gap between them and the U.S. may be expected to narrow in the seventies.

32. Rising real incomes have also been pushing up tinplate consumption in many developing countries. It is natural to look at differences in per capita income for at least a partial explanation of differences in per capita tinplate consumption in these countries. This has been attempted in the accompanying Chart , which appears in the Appendix. Broadly speaking, the countries fal. into two groups. With some exceptions those with a substantial export trade in canned food have a higher per capita consumption of tinplate than those with little or no export trade, for a comparable level of income per head. In both groups the higher the GNP per head, the higher tends to be the demand for tinplate. The countries with the highest incomes have the highest tinplate consumption. It seems, therefore, that as incomes rise in developing countries their per capita consumption of tinplate will continue to rise, quite apart from the effect of an export trade in canned food.

33. Nevertheless, there are some factors other than incomes which influence the level and rate of growth of consumption of tinplate. Much depends on consumers' habits and tastes, as far as canned food is concerned. In developing countries consumers are accustomed to fresh food. Large parts of the population are outside the market economy, which effectively checks the demand for canned food. Not only do they lack the incomes to pay for it, it is also not accessible to them, living as they do in rural communities. Hence they adhere to a traditional pattern of consumption in which canned food plays little part. This point has been strongly made by a recent study of American investment in Latin American food processing industries.[1]

[1] John D. Moore and Jran ...rowski, U.S. Investment in Latin American Food Processing, Praeger Special Studies in International Economics and Development, New York, 1967.

34. Even with that part of the population in the upper-income bracket, admittedly a small part of the total consuming public, there is not yet a demand for canned food comparable to that of similarly placed consumers in advanced countries. So far, the taste for the canned product has not been cultivated; consumers are used to fresh fruit or meat which is generally always available. The element of convenience has no appeal because labour services are abundant and cheap, hence the purchase and preparation of fresh food are more economically rational than using canned food.

35. Long-run, educational attitudes to food change very slowly. Probably relative prices still favour fresh food with that part of the population which is urbanized and in the money economy. However, growing urbanization will bring more of the population to an awareness of the canned food market, canned food will be more accessible, and advertising is likely to have a gradual effect. Already, tastes have been changing in a few relatively high-income developing countries such as Venezuela and Puerto Rico, where per capita consumption of canned fruits for the domestic market has risen sharply in the last fifteen years. Possibly one side-effect of American influence in South-East Asia will be a growing taste for canned products, both food and beverages. Whether the potential demand can be met at retail prices remains to be seen. But it seems reasonable to suppose that those countries which maintain good growth rates in the next twenty years or so will follow the leading lines of the consumers' revolution in countries.

36. The inhibiting effects of tastes and habits do not apply to the large, if uncertain, part of the output of the container industry which is used for non-food products. The most striking recent example is the aerosol can which has the advantage that it can perform functions for which there is no substitute product. Thus it overcomes the consumer resistance of the better-off part of the population. Rates of growth of production of aerosols have been extremely high in some Latin American countries. Between 1967 and 1968 the combined output of Brazil, Mexico, and Argentina rose by about 28 per cent. In Brazil the increase was 50 per cent. Still, a combined output of 55 million units is small compared with an estimated output of 855 million units in Western Europe.

37. Growing industrialisation and urbanisation may be expected to increase the demand for the other non-food uses of tinplate containers, notably paints and oils. This means increasing investment in can-making and packaging equipment. It is an inescapable investment from which follows an increasing import bill for tinplate unless there is domestic capacity, the case for which has been discussed in the previous section.

38. It does not follow of course that the growth of the processed food industry or of the packing of non-food products necessarily means a corresponding growth of tinplate consumption. In the advanced countries there is competition between tinplate, aluminium, plastics, glass, and now tinfree steel. Canned foods compete also with frozen foods. As far as developing countries are concerned, this competition

is not yet significant. Frozen foods are ruled out by the small market for refrigerators in low-income societies. There is little information about the use of aluminium or plastics as canning materials. While these may be expected to come into use eventually, it is doubtful whether they will threaten the actual and potential markets for tinplate in developing countries even towards the end of the seventies.

Export markets.

39. In many developing countries the growth of tinplate consumption depends to a large extent on an export trade in canned food, chiefly meat, fruit, and fish. Information about the export trade in canned food is much better than it is about the purely domestic uses of tinplate. The statistical picture is given in Tables 5 and 10.

40. It is common for practically all of some countries' output of some kinds of canned food to be exported. This applies to pineapple production in Malaysia, Kenya, Ivory Coast, and Taiwan, and to meat production in Tanzania, Kenya, Argentina, and Paraguay. How large a proportion of the tinplate consumption of such countries is re-exported in the form of canned food can be roughly estimated by assuming that the average weight of tinplate per canned product is about 25 per cent of the gross weight. This is assumed to be appropriate to the normal food can for domestic purposes. The export proportion certainly varies greatly between developing countries on the basis of this proportion.

41. In 1967 about 25 per cent of Argentina's tinplate consumption went into the export trade, chiefly canned meat, about 25-30 per cent of Kenya's consumption; 35-40 per cent of Jamaica's consumption, about 60 per cent of Taiwan's consumption, and about 70 per cent or more of Morocco's consumption. The proportion in Mexico is very much less, about 6-7 per cent,

even less in Chile, and, as far as information goes, zero in Venezuela, whose entire consumption is for the domestic market.

42. The proportion varies somewhat from year to year, depending on demand in importing countries, where there is strong competition, and also on difficulties over deliveries arising from, say, a bad crop. Estimates of the tinplate export content of canned food for earlier years in the sixties do not show any significant change in some countries, but a fall in the export proportion in others during the period. Since part of the canning industry's output is for non-food purposes such as paints, oils, and aerosols, none of which is probably exported, it is likely that the growth of this domestic demand for tinplate will tend to reduce the export proportion of tinplate. In addition, the growth of import substitution for, say, canned milk and other canned foods, will also tend to raise tinplate consumption for the home market faster than for the export market. There is evidence of this trend in Malaysia and the Philippines.

43. As Table 5 shows, several developing countries have been particularly successful in building up an export trade in canned fruit. Taiwan's exports of canned pineapple increased from an average of 27,900 tons in 1956-60 to about 86,000 tons in 1963-66. Ivory Coast's exports rose dramatically from an average of only 2,600 tons in 1956-60 to 18,000 tons in 1966. Mexico's exports increased from 12,400 tons in the first period to 27,700 tons in 1966.

44. The growth of Malaysia's exports of canned pineapple has been slower, but the absolute increase of 30,000 tons between 1956-60 and 1966 was second only to the increase in Taiwan's exports, and about the same as the phenomenal growth in canned pineapple exports from the Ryukyus to its sole market, Japan.

45. It is worth noting that Malaysia's exports of canned pineapple has only recently approximated to the high volume of pre-1959 exports. There appear to have been supply difficulties after the war, and on the demand side the U.K. market for Malaysian canned pineapple has been more or less static throughout the sixties. The U.K., however, remains the largest single market for Malaysia. It is interesting that Malaysia has developed complementary markets in the U.S., West Germany, and Canada, as well as small markets in several developing countries, notably Aden and Arabia.

46. World exports of canned fruit approximately doubled between 1956-60 and 1965-66. The share of the developing countries listed in Table 8 was about the same in both periods. Thus in spite of difficulties they have managed to hold their ground in this important and competitive market. Some countries have clearly been much more successful than others. Argentina's exports have fluctuated violently. Imports from the Philippines doubled between 1956-60 and 1965-66, but in contrast to Taiwan's experience, they flattened out in the sixties, at least up to 1966.

49. The U.K. is still the most important importer, although its share of world imports has fallen sharply since the fifties. In 1951-53 it was nearly 60 per cent, in 1956-60 slightly over 50 per cent, in 1961-65 under 40 per cent. Since 1956-60 U.K. imports have risen by about 30 per cent. This is a very modest growth rate compared with that of other leading importers, but it must be noted that the U.K. was a larger importer in the fifties and the per capita consumption of canned fruit was high compared with that of most important countries.

50. It does not follow, however, that a country with a very high per capita consumption of canned fruit will not have a high rate of growth of imports. American experience proves the contrary. Imports have more than doubled since 1956-60, after nearly doubling between 1951-53 and 1956-60. From 1938 to 1965 imports grew at the rate of 14 per cent per annum. America has a very large domestic production of canned pineapple,[9] and also a sizeable export trade. But imports of canned pineapple have accounted for a large part of total canned fruit imports. From Malaysia alone they rose from an average of 1,000 tons in 1956-60 to 19,000 tons in 1965. Depending on relative prices and other factors, there could be a large potential demand for imported canned fruit in the U.S. for some developing countries, if only through quite small substitution of imports for domestic production. The same would

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9. Hawaii.

apply to canned meat and fish.

49. The comparatively slow growth of imports of canned fruit into the U.K. has been more than offset by the much higher growth of the U.S. and West German markets. From small volumes in the fifties, West Germany's imports have risen as well over 200,000 tons, which now give Germany about one-quarter of world imports. The fastest growing market, admittedly starting from a low level of imports in the fifties, has been Japan. Imports more than doubled between 1961 and 1966, from 24,000 tons to 55,000 tons.

50. Tables 7 to 9 show the shares of developing countries in canned fruit imports of the U.K., West Germany, and France. In 1966-67 developing countries had about one-seventh of U.K. imports, roughly the same share as in the fifties. In West Germany their share varied between one-sixth and one-seventh between 1960 and 1966. In France, which is a much smaller importer than either the U.K. or West Germany, the share of developing countries is much higher, with signs of a fall between the early and later sixties. In the chief importing countries as a whole the share of developing countries is probably about one-quarter, most of it being canned pineapple from Malaysia, Taiwan, Philippines, Ivory Coast, and Jamaica.

51. Over the period 1956 to 1966, or 1967 for the U.K., the rate of growth of imports has ranged from 2.6 per cent in the U.K. to 12 per cent in Japan. These growth rates, with the exception of the U.K. rate, are much higher than the projected rates of growth of consumption which were arrived at recently in a study of British

Commonwealth trade and development prospects.[1] This study made projections of the growth of canned fruit consumption from 1960-61 to 1975 for the U.K., U.S.A., Canada, Japan, and the E.E.C. Projected rates were U.K. (2.6 per cent), U.S.A. (2.0 per cent), Canada (2.7 per cent), Japan (8.0 per cent), and the E.E.C. (5.3 per cent). The combined figure was 3.1 per cent. Between 1958 and 1966, however, imports into this group of countries grew at the rate of 8 per cent per annum, more than twice the projected rate of growth of consumption. If this rate of growth were to continue throughout the seventies, there would be a very large absolute increase in the volume of imports of canned fruit by 1980. Assuming that developing countries maintained their share of world exports at roughly one-quarter, as they did between 1956-60 and 1966, they could expect a large increase in exports, for which there would have to be a large increase in investment in the canning industry. 58. Nevertheless, it is very doubtful whether a growth rate of 8 per cent could be maintained. Japanese imports of canned pineapple, which form the bulk of canned fruit imports, were only 2 per cent above the 1966 level in 1968. The actual rate of growth between 1958 and 1966 was 22 per cent, but the starting level of imports was very low. By the mid-sixties U.K. imports showed signs of flattening out, and they accounted for over one-quarter of world imports. These facts point to some caution in extrapolating the growth rates from 1958 to 1966. But it is also worth stressing that the income elasticity of

[1] I. A. Kaitsis et al., Exports and Economic Growth of Developing Countries, University Press, Cambridge, England, 1968.

demand for canned fruit is believed to be high in industrial countries.

53. World trade in canned meat grew by about 50 per cent between 1958-9 and 1967-8. The six developing countries listed in Table 10 did not as a whole increase their share or their absolute level of exports. The largest exporter had a particularly chequered history. The newest exporters, Kenya and Tanzania, did not maintain their earlier growth rates. Most of the increase in exports was due to Denmark and the Netherlands.

54. On the import side there are only three large markets, the U.K., West Germany, and the U.S. British imports have been more or less static for years, although domestic production of canned meat has been rising. West German and American imports on the contrary have risen markedly since the late fifties. There have been increases in imports into Canada, Belgium, the Netherlands and Sweden, but their total imports in 1968 were only about 28,000 tons, a little over half of West Germany's imports.

55. Excluding the U.K., imports into the main advanced importing countries grew at the rate of about 7 per cent per annum between 1958 and 1968. If this rate of growth were maintained on average throughout the seventies, the level of imports into these countries would rise to about 500,000 tons by 1980 compared with only 244,000 tons in 1968. Unless there were major increases in imports by the smaller countries, most of this expansion would have to come from West Germany and the U.S. As far as the latter is

consumed, a very big increase in imports would probably require some substitution for domestic production, since the per capita level of consumption is already high.

56. Exports of canned fish from developing countries are a relatively small part of their total canned food trade, but of great importance to two countries, Peru and Morocco. Exports have fluctuated considerably for both supply and demand reasons. Apart from the sharp growth of Peru's exports in the fifties, there has been no marked upward trend comparable to that of canned fruit exports from developing countries.

57. The growth of exports of canned food can be analysed conveniently from two angles, first, factors operating on the supply side, secondly, those operating on the demand side.

Supply factors.

58. From the point of view of supply it is necessary to go right back to the sources of raw food in the agricultural sector. A large export trade in canned meat depends on the ability of the agricultural sector to provide a continuous supply of meat of the right quality at competitive prices. Developing countries in general are well behind advanced countries in animal husbandry. This is particularly true of African countries. Although some assistance has been provided by the World Bank group, it has been pointed out recently that up to 1969 only 26 development loans have been given by the Bank to 18 countries for this purpose and only six million head of cattle have been involved, a very small fraction of the total cattle population of developing countries. Unless there is sufficient investment in animal husbandry costs are kept up. The price of livestock may be high, possibly as high as prices in high-cost industrial countries. Developing countries, therefore, lose one potential advantage in the chain of processing.

59. Investment is also necessary in refrigeration facilities to ensure a regular supply of meat to the canneries, as well as in a transport system in rural areas. If the export market is the chief outlet there are greater risks in investment than there would be if there were a large home market, especially if the

export industry does not have special advantages in its market, such as discriminating treatment by the importing country.

60. Similar problems arise with raw fruit supply. Developing countries which are trying to break into an export market may not produce fruit which is suitable for both canning and the local fresh market. Hence new investment, new methods of cultivation will be necessary to break into the export market, and this presupposes taking a long-term view. According to one study of the problem, "to establish a proper fruit processing industry would often presuppose considerable long-term investment in new plantings of varieties which possess the required properties"

61. Most developing countries have difficulties in reaching or maintaining a sufficiently high standard of quality in their raw food for the canning industry. This is the conclusion of a recent review of American investment in the Latin American food processing industry.[1] There are repeated references throughout to "lack of quality" and "lack of uniformity in quality". It has also been found by subsidiaries of international companies in the same area that raw material costs are often high in the subsidiary plants compared with those of home-based plants. Further, raw food supplies tend to be uncertain and unreliable when free market prices exceed contract prices, since suppliers fail to meet their contractual deliveries. This obviously has an adverse effect on production planning and costing in the canneries.

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1. John R. Moore and Frank A. Padovano, U.S. Investment in Latin American Food Processing, Praeger Special Studies in International Economics and Development, New York, 1967.

62. There must be considerable variations in costs of both canning and can-making in developing countries. Prima facie, it might be thought that labour would be relatively cheap. Social charges, however, tend to be high and labour costs are also affected by lower productivity. This could be due to problems of management and supervision. The cost of capital equipment may be high because of import duties and high interest rates. Tinplate costs may be higher than in advanced countries if local tinplate production needs high protection or if variable quality causes problems for the can-maker.

63. In the can-making plants shorter runs than in advanced countries raise costs. Generally speaking, the longer the runs and the greater the specialisation by type of can the lower are unit costs. Under-capacity working raises capital costs per unit of output. This is a common phenomenon in developing countries. Can-making factories are built for a scale of production which the growth of the market is slow to reach. Yet it is economically irrational to build a much smaller plant once the decision has been taken to build one.

64. To this formidable list of problems can be added the lack of facilities or demand for the by-products of the canning factories. Meat-canning costs are higher than they need be because there is no systematic use of by-products like blood and bone. Usually the local demand is inadequate.

65. Clearly these difficulties weaken the competitive ability of developing countries in export markets which are supplied by much more efficient producers in advanced countries. That they are capable of being dealt with, however, is evident from the successful growth of exports from a number of countries, such as Taiwan and Mexico.

66. There are two important non-production problems. The first applies to new producers who are not linked with a large international company or with other agencies in the potential importing countries. It involves the question of knowledge of export possibilities. The producer in the developing country may simply not know about the existence of a potential export market. This is by no means uncommon in advanced countries, especially with smaller firms. It is much more important in developing countries.

67. Secondly, an export market depends on regular shipping services. It is likely that some developing countries are not served with transport between their ports of exit and potential markets. How important this is would require an investigation. It is probably relevant to trade contacts between the developing countries themselves. Without a regular service an export trade cannot be built up. Without the volume of traffic the service is uneconomic. It is a vicious circle.

Demand factors.

68. The foreign demand for developing countries' exports of canned food is influenced by a number of factors; tariffs and non-tariff obstacles, in many cases preferential treatment by importing countries, competition from domestic suppliers in importing countries, competition from other exporters in advanced countries, import and export policies of the centrally-planned socialist countries.

69. It is a well-known complaint by developing countries that their prospects of exporting manufactures are damaged by the tendency in advanced countries to impose higher tariffs on imports of manufactures than on imports of raw or semi-processed products. This means that nominal tariffs on manufactures understate the degree of protection to domestic producers of import substitutes. Canned foods are subject to this procedure. In the U.S. there is a 3 cent per lb. specific rate on fresh, chilled or frozen beef, a 12 per cent ad valorem rate on canned beef. Canada has a general 8 cent per lb. rate on the former, a 35 per cent ad valorem rate on the latter. Varying degrees of discrimination according to processing can be found in other advanced countries. (The U.K. allows free entry to Commonwealth suppliers of both canned and other types of meat and fruit.) Specific duties also tend to weight more heavily on exports from developing countries when they supply the cheaper grades of canned food.

70. However significant as obstacle tariffs may be, there can be no doubt that non-tariff obstacles are more important as far as processed foods are concerned. As tariffs are reduced, the other obstacles can be seen more clearly to be crucial to any large expansion of exports from most developing countries. Canned meat, fruit, fish and vegetables are subject to very stringent health regulations in the major importing countries. These regulations apply to the raw food and to the conditions under which it is processed in the canning factories. Unless a developing country can satisfy these regulations it has no chance of breaking into, say, the U.K. or West German markets. Even a long-established supplier can be drastically affected by a lapse from the specified standards. It follows that developing countries which aim to exploit potential export markets for canned food must raise their standards of cultivation, animal husbandry and inspection of canning factories to levels which are beyond those customary on the home market. This can be a lengthy process, with a more remote pay-off than with other types of manufactures.

71. Subsidiaries of large international companies which can be assisted by the parent firm find it easier to deal with the complicated regulations of importing countries than nationally owned firms. The large companies are also well established with brand names in leading importing countries, especially in the U.K. According to a recent study of the canned meat market by the Geneva Trade Centre,[1] these brands give consumers the guarantee

1. Geneva International Trade Centre, G.A.T.T., The Market for Canned Beef in the United Kingdom and the Federal Republic of Germany, Geneva 1967.

of quality and have a firm hold on the U.K. consumer size meat pack. Referring specifically to the prospects for canned meat exports by West African countries, the Centre states categorically that it would be very difficult for a new supplier to penetrate the consumer size can market in the U.K., the largest importing country, with a new brand. "Extensive and costly promotion campaigns would have to be carried out with no short-term return". This problem does not arise with the catering size market where there is less brand consciousness, but price competitiveness becomes even more important. In the West German market brand consciousness is less significant. The Centre report suggests that a new supplier has a better chance, therefore, of breaking into the German market. It quotes the example of Rumania, whose market share of canned beef imports rose to 7 per cent in four years. Poland's share rose from 22 per cent to 38 per cent between 1963 and 1966. Both countries had the advantage that German imports and consumption were expanding sharply. A new supplier like Rumania did not encroach on sales by established suppliers, as would have been the case in the more or less static U.K. market for imports.

78. The prospects for developing countries depend to a large extent on competition from domestic suppliers in the main importing countries. U.K. production of canned meat rose from 92,000 tons in 1960 to 102,000 tons in 1965, and 127,600 tons in 1966.[1]

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1. The U.K. does not produce canned beef.

Total supplies, excluding stock changes, rose from 200,000 tons in 1958 to 335,000 tons in 1966, but the share of imports fell from 78 per cent to 58 per cent. Estimated per capita consumption of imported canned meat fell from 0.61b. to 0.81b., whereas for domestic production it rose from 2.31b. to 3.21b.

78. In West Germany there has certainly been a sharp rise in canned meat imports, and the share of imports in total supply has risen. Domestic production has also risen sharply. While imports rose by 30,000 tons between 1960 and 1967, domestic production rose by 80,000 tons.

79. In the U.K. a rise of 36,000 tons in imports between 1958 and 1967 was accompanied by a 276,000 ton increase in domestic production. There is also competition in the U.K. between American suppliers of certain kinds of canned fruit, notably pineapple,[1] and suppliers in developing countries. It is worth pointing out, however, that production has been more or less static since the late fifties while imports from Malaysia have risen from about 9,000 tons to 15,000 tons (1966).

80. There is keen competition between developing countries and advanced countries in export markets for canned meat, fruit, and fish. Traditional Latin American meat exporters to the U.K. compete with Denmark,[2] Poland, and the Netherlands. In 1958 Denmark

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1. Malaysia Herald.
2. Danish production of canned meat rose from 9,000 tons (1954-58) to 100,000 tons in 1965.

and the Netherlands had about 50 per cent of U.S. imports, Poland about 15 per cent. The four Latin American countries, Argentina, Brazil, Paraguay, and Uruguay had 30 per cent. Before the 1939-45 war U.S. canned meat imports from Denmark and the Netherlands were negligible. In the equally large U.K. import market in 1968 Denmark and the Netherlands accounted for about 44 per cent, Yugoslavia and Poland 11 per cent. The same four Latin American countries had 35 per cent. Contrast the pattern of U.K. imports in 1937-38, when Denmark and the Netherlands had a negligible share, some 4,000 tons out of 70,000 tons. Argentina had half the British market, Uruguay about 12 per cent.

76. To a large extent the change in the British pattern of imports has been due to supply difficulties in Argentina in the fifties. Figures for 1962-68 suggest that, with the exception of the period after the typhoid crisis, Argentina is now holding its share of the British market. The same applies to the U.S. market.

77. In the canned fruit trade the developing countries exporting pineapple compete with South Africa,[1] the U.S., and Australia in European markets. Japan, Portugal and South Africa are competitors in the canned fish market. As pointed out earlier, lower wages in the developing countries do not

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1. South African production of canned fruit rose from 7,000 tons (1934-38) to 170,000 tons in 1964.

necessarily mean lower wage costs nor do they offset other cost differences. In so far, therefore, as the same or similar canned products are exported by developing countries, it will be difficult to achieve a really large expansion of exports without some assistance.

78. It is logical at this point to consider the effects of preferential links between developing countries and the main importing countries. There is currently much discussion about the case for assisting exports of manufactures from developing countries by preferential treatment in the industrial importing countries. It is argued that apparently non-discriminatory tariffs are insufficient to enable developing countries to compete with more efficient and larger-scale producers in industrial countries. Equal treatment for suppliers from developing and industrial countries in effect does not give the former a chance to compete now and retards their subsequent growth.

79. The U.K. gives preferential treatment to imports from Commonwealth countries, which includes both developing and advanced countries. France does the same for countries in the franc zone, all of which are developing countries. The results can be seen in the high proportion of French imports of canned fruit from Martinique, Ivory Coast, and Morocco. These exporters supplied nearly three-quarters of French imports in 1965-66. Two-thirds of French imports of canned fish in 1965 came from the franc zone. Tanganyika and Kenyan

canned meat exports go almost entirely to the U.K. Between 1956 and 1960 the U.K. took about three-quarters of Malaysia's exports of canned fruit. Malaysian-U.K. trade, however, shows that preferential treatment in a market is of diminishing significance if the market becomes more or less static.

80. Japan gives preferential treatment to imports of canned fruit from the Ryukyus, limiting imports from other sources by quota. From 1956-60 to 1966 imports from the Ryukyus rose from 4,000 tons to 38,000 tons.

81. Apart from any preferences, a developing country may build up a large export trade with a particular importing country if companies from the latter invest abroad with an eye on exporting part at least of their output to the home country. This explains much American investment in the Latin-American food processing industry. The same point is relevant to the U.K., France, and possibly Italy, in relation to their former empires.

82. It is to be expected that trade links between some developing countries and importing countries should be strong for historical reasons. Inevitably this means that outside countries are at some disadvantage in these markets. How serious it is depends on the size of alternative markets. Moreover, if preferential links tend to involve a concentration of exports to particular markets, there should be less competition from these exporters in other markets. If Ivory Coast canned fruit is sold to France, there may be more room for, say, Taiwan's exports to Germany. But this consolation is not a complete refutation of the complaints of the outsiders.

83. This question of discriminating treatment for developing countries will arise more acutely in the seventies if there is an enlargement of the European Economic Community, the great foreign trade uncertainty of the early seventies. To date, the EEC gives preferences to the former French colonies, to Greece, and several other countries. There does not appear to have been much effect on canned food trade between the developing countries and EEC member countries. The most intriguing questions are the implications of U.K. membership and, possibly, U.S. reactions to EEC trade policies.

84. Membership of EEC might presumably involve the extension of the Yaoundé Convention to the U.K., in which case some franc zone producers of canned products would have easier access, if they wished, to the largest importer. Unless the EEC extended its preferential system to Commonwealth countries, or the U.K. was allowed to retain part of its Commonwealth preference, the four main developing countries, Malaysia, Kenya, Tanzania, and Jamaica, would have a tariff barrier in the U.K. market. If they were treated like franc zone countries, they would have an advantage over the Philippines and Taiwan in canned fruit, and over the Latin American producers in canned meat. They would also have an advantage over Australia, New Zealand, South Africa, and the U.S. SL. The U.S. might be expected to object to an EEC trade policy which extended the area of discrimination against some of its exports and against those of Latin American countries. In fact,

it has already been reported that the U.S. would consider preferences for Latin American countries. The basic weakness of this part of EEC policy is that, by making special arrangements for some developing countries, it narrows the potential trade opportunities for others. At the same time, in so far as more developing countries are brought within the system the potential advantage to each is reduced. Conceivably, however, Martinique's easier access to the U.K. market might offset Jamaica's easier access to the existing EEC market. Outside developing countries would be worse off.

86. At this stage it is impossible to say what would be done about Commonwealth preference. It is not even certain that the U.K., and Denmark, will join EEC. In the short run there would probably not be much change in trade patterns. The mere fact that the Ivory Coast had equal access with Jamaica to the U.K. market would not necessarily affect the direction of its exports. Established trade links tend to persist. But in the longer run an enlarged EEC, or even the existing EEC, with its associated countries, could not fail to influence the trade of many developing countries in processed food.

87. There are other countries which will influence the future prospects for trade in canned food. Within the group of centrally-planned economies the USSR has been a sizeable importer of canned meat in some years, but imports have fluctuated greatly without any sign of a rising trend. The position with canned

fruit looks more promising. Imports into the USSR rose from 14,200 tons in 1956-60 to 51,000 tons in 1965-66. The geographical distribution of these imports is unfortunately uncertain. East German imports from Bulgaria and Cuba rose from 5,600 tons in 1956-60 to 14,700 tons in 1965-66.

68. Prima facie, it appears that East Germany in particular should be a large potential importer of canned fruit from tropical developing countries. Total imports of canned fruit in 1965 were only 6 per cent of West Germany's imports, and per capital consumption must be far below that of West Germany. This is certainly true of the rest of Eastern Europe. In all the centrally-planned socialist countries, however, there is a persistent shortage of foreign currency, which has its most severe effects on imports of consumer goods. Although rising real incomes might be expected to increase the potential demand for canned food, the balance of payments constraint restricts imports. Moreover, two of the East European countries, Poland and Rumania, are canned meat exporters, competing with developing countries in European markets.

69. If the centrally-planned socialist countries give a higher priority to consumer goods and accept greater trade with developing countries as a mutually beneficial policy, imports of canned food would seem a logical development. No doubt the philosophy of avoiding what is regarded as over-dependence on foreign trade will persist. However, this argument should be

less convincing for consumer goods, for which reasonable substitutes are possible. It is much less inconvenient for a centrally-planned economy to be forced to cut imports of consumer goods for balance of payments reasons than to cut imports of raw materials or capital equipment. A temporary scarcity of consumer goods does not dislocate production plans as a shortage of intermediate products or basic materials would do.

90. This is looking at the question from the point of view of the importing country. As far as the developing exporting country is concerned, it is damaging to build up an export trade to a market which is liable to drastic fluctuations on the demand side. Whether the centrally-planned economies would have a more variable import demand for canned food than market economies is uncertain. This has been so with USSR imports of canned meat. West German imports of canned fruit from developing countries fell by about 25 per cent in 1960 and by about 20 per cent in 1966. There were no comparable falls in U.K. or French imports between 1960 and 1967.

91. In some cases a fall in imports might be due to supply difficulties in exporting countries. Where it is not, there is a problem of absorption in the developing country if the canned product is chiefly exported and the home elasticity of demand for it or for the fresh product is low.

98. In the short run the large canned food importing countries must be the main targets for developing countries. This implies matching their high standards of quality and their highly competitive marketing. The recent Geneva Trade Centre study drew attention to other markets, at least for canned meat, a list of which is given in Table 14. Some of these countries imports on a large scale, but several have grown markedly from a small starting level in recent years. Notable examples are Greece, imports rising from 1,300 tons in 1961 to 6,700 tons in 1965, Malaysia, rising from 2,350 tons to 6,470 tons, U.A.R., rising from 1,000 tons to 3,500 tons. Total imports of this group, less Algeria, which was affected by special circumstances, rose from 31,000 tons in 1961 to 54,000 tons in 1965. Others in the group are Cyprus, Malta, Canary Islands, and Jamaica. To some extent growing imports into these countries probably reflects the catering for the tourist trade. Most of the growth of meat imports must be for domestic consumption as a consequence of rising living standards.

99. The significance of these markets in developing countries is that their health regulations are probably less exacting, the average consumer has a lower income and less demanding tastes for canned food, advertising and promotion in general are less expensive, there is less competition from domestic suppliers since the raw food supply is less abundant. The Centre study, therefore, suggests that some developing countries would find it easier to cultivate these markets before attempting to break into the large and more sophisticated markets.

94. An examination of other canned food imports by developing countries shows that there is a fairly extensive demand for canned fish, fruit, milk, and other products. Milk appears to be the largest import, but supplies come from advanced countries. There is evidence of import substitution here, notably in Malaysia, Kenya, and Venezuela. Asian countries import canned fish from Japan and possibly South Africa. There would appear to be scope for import substitution, given new investment in canning and other facilities. An export trade in canned fish to other developing countries, however, involves meeting competition from highly efficient exporters, which has been a recurrent theme in this study.

Transfer of technology and other knowledge.

95. Much has been written about the technological gap between industrial and developing countries. Developing countries can start off with modern tinplate capacity, so that initially they are on a par with industrial countries, certainly with a very high proportion of the latter's existing capacity. But the product and process are subject to improvements as the result of research and development work which is carried out only in the industrial countries.

96. The extent to which these improvements can be emulated by the developing countries depends on their managerial, supervisory, and labour skills. The information can be acquired, as can the foreign experts. Although this is a cost, it is not large in relation to the cost of building tinplate capacity, and it must also be set against potential cost-saving, as well as the gain to the labour force. As one authority has aptly put it[1], it is a question of the willingness "to pay the school fee".

97. It is not necessary, however, that every change in an advanced country like the U.S. should be copied, certainly if a large new investment is required. It all depends on the market situation in the developing country. The same applies to the can-making and canning industries. But the proviso ought to be made that unless there is sufficient competition

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1. Dr.W.E. Moore, Director, Tin Research Institute, London.

from other packaging materials there is a risk that in developing countries the incentive to keep reasonably up-to-date will be weaker than in advanced countries.

99. It is a feature of advanced countries that there is cooperation between simple trader, sub-broker, and owner. International can manufacturers such as American Can, Continental Can and Metal Box offer a variety of technical and non-technical services to the owner and look for solutions to their packing problems. American canning companies in Latin America advise their raw food suppliers on farming methods and product qualities. It is inconceivable, however, that in developing countries generally much more production-oriented research is necessary. Ultimately these countries will have to build up their own research capability to deal with the practical problems of canning and raw food supply.

99. It is not merely a question of production problems. Developing countries lack the professional market research which would supply information on price elasticities, design standards, packaging styles, consumer preferences, and competition from other products. This information is obviously important for export markets. Large international companies have played an important role in this market-oriented research, the cost of which is usually too great for small locally-owned producers. Even the centrally-planned socialist countries of Eastern Europe have realised the potential contribution of Western marketing expertise to their exports, hence the agreements between their export agencies and Western companies. This is perfectly compatible with state control of the exporting industry.

Statistical Appendix.

Table 1. Tinplate production in developing countries.
Table 2. Apparent consumption of tinplate per capita.
Table 3. Apparent tinplate consumption in certain countries.
Table 4. Estimated domestic use of tinplate.
Table 5. Imports of canned fruit from developing countries.
Table 6. Imports of canned fruit into certain countries.
Table 7. U.K. imports of canned fruit from developing countries.
Table 8. West German imports of canned fruit from developing countries.
Table 9. Imports of canned fruit into France from developing countries.
Table 10. Imports of canned meat from certain countries.
Table 11. Imports of canned meat into principal importing countries.
Table 12. Imports of canned meat into U.K. from developing countries.
Table 13. Production of canned fish.
Table 14. Imports of canned meat into developing countries.

Chart 1. Apparent tinplate consumption per capita and G.N.P. per capita in developing countries.

Table 1

Tinplate production in developing countries

000 long tons

	Brazil	Mexico	Chile	India	Philippines	Turkey	Spain	Total
1947	-	3	-	46	-	-	1?	55
8	6	5	-	54	-	-	12	71
9	21	8	-	64	-	-	12	105
1950	37	11	6	64	-	-	12	134
1	44	12	12	70	-	-	15	155
2	41	12	16	67	-	-	14	150
3	40	19	15	57	-	-	13	144
4	41	24	18	64	-	-	14	165
5	50	25	18	70	-	-	18	169
6	67	29	20	72	-	-	15	225
7	71	33	16	65	-	-	13	198
8	70	51	16	58	-	-	17	220
9	88	59	17	68	-	-	17	249
1960	90	57	14	79	-	-	15	257
1	100	68	17	88	-	-	29	300
2	137	70	26	95	1	-	39	370
3	138	96	29	99	5	-	39	446
4	163	84	26	105	31	-	51	440
5	188	113	19	89	35	15	121	548
6	188	104	31	79	50	27	105	555
7	209	127	36	78	46	44	-	550
Prov.	206	131	26	90	48	44	104	607
Prov.	220	134	30	94	40	46	170	700

Source: V. Robertson, Report on World Tin Position, ITC, 1965;
ITC Statistical Bulletin, March, 1970.

Table 8

Annual consumption of timber per capita. lbs.

	1938	1950	1952	1954	1956	1958
Argentina	8.5	9.5	9.1	11.5	9.4	10.4
Brazil	3.8	5.6	5.9	5.4	5.7	6.0
Mexico	3.6	5.8	4.8	4.9	5.1	6.6
Venezuela	4.5	14.7	16.2	16.7	17.6	17.5
India	0.5	0.9	0.7	0.8	0.5	0.6
Philippines	3.3	4.8	3.4	5.2	3.7	3.4
Portugal	6.0	6.7	9.8	11.4	10.8	11.8
Spain	3.9	5.4	7.5	9.2	12.5	14.2
U.S.A.	34.2	38.9	34.6	33.8	32.9	40.8
U.K.	25.3	29.7	29.1	31.9	33.6	34.0
Germany/Fed.	11.8	19.2	17.4	19.2	19.3	20.9
France	11.4	13.9	14.1	14.9	17.9	18.1
Italy	6.5	9.3	11.0	11.0	14.0	14.1
Japan	3.9	6.9	9.9	10.8	13.4	13.5

Source: A. Jr Grahn, Patterns of World Tim Consumption. 1950-1958. International Tim Council, London.

[redacted]

Table 4

Estimated domestic use of tinplate[1] 000 long tons

	Argentina	Mexico	Jamaica	Kenya	Philippines
1956	92	32	1.1	4.2	30
7	97	44	2.3	3.8	33
8	-	49	2.5	3.0	25
9	73	56	2.8	3.6	33
1960	70	50	3.1	4.5	47
1	68	69	1.9	3.4	57
2	72	70	3.1	6.0	50
3	73	93	3.1	3.4	54
4	93	82	2.2	6.6	65
5	90	112	4.3	6.6	65
6	70	95	3.3	7.9	73

Source: International Tin Council Statistical Year Books. Commonwealth Secretariat, London. Reviews of [illegible] and Fruit.

1. Rough estimates, derived from calculation of tinplate content of exports of canned food. [illegible]

Table 6.

Imports of canned fruits from Caribbean countries.

	1956-60 average[1]	1961	1962	1963	1964	1965	1966
							'000 long tons
Argentina	8.7	5.4	3.1	11.2	10.2	7.8	2.4
Brazil	12.4	17.4	16.8	21.8	23.7	23.8	27.7
Barbados	6.3	11.6	6.7	8.8	11.3	10.1	9.8
Jamaica	4.2	8.4	7.6	8.5	8.1	11.2	10.2
Brit.Honduras	2.1	2.1	1.0	2.4	0.5	2.1	3.1
Trinidad	2.6	4.2	5.4	7.8	10.6	12.7	16.8
Fiji	5.2	4.3	7.4	9.4	10.4	8.9	6.0
Indonesia[2]	11.2	17.1	13.4	12.2	10.7	5.6	-
S.Angola	38.4	45.8	48.8	51.1	53.1	65.1	68.7
Taiwan	27.9	47.7	48.8	51.3	68.9	76.6	85.0
Philippines[3]	21.9	42.7	39.8	32.7	33.1	43.6	44.5
China[4]	10.9	8.8	7.9	9.2	10.7	10.8	11.9
Spanish Colonies[5]	6.2	10.7	10.5	17.3	23.2	31.7	38.3
Cyprus	0.8	1.8	1.1	1.3	1.9	1.2	1.3
Total of above	168.8	230.6	222.7	245.7	280.4	323.8	327.7
World total[6]	661.1	980.6	1,005.0	1,090.6	1,135.1	1,201.7	1,256.1

Source: Commonwealth Secretariat, London. Fruit, 1960.

1. Or available years. 2. Includes small quantities of other preserved fruits.
3. Pineapple only. 4. Based on importing countries' statistics.
5. Pineapple only. Imports into Japan.
6. Countries listed by Commonwealth Secretariat, London.

Table 8

Imports of canned fruit into certain countries

000 tons

	1951-55	1956-60	1961	1962	1963	1964	1965	1966
U.K.	197.1	308.0	361.3	407.2	379.7	381.7	371.0	411.6
W.Germany	77.1	88.3	146.2	212.3	198.6	213.4	232.3	225.4
France	4.7	22.7	27.2	31.0	30.3	41.0	41.3	33.2
Belgium	9.1	21.2	27.1	25.2	30.9	36.2	37.6	39.3
Netherlands	3.3	11.0	21.6	25.3	28.1	33.0	37.7	43.3
U.S.A.	29.9	43.3	65.2	66.0	72.3	65.3	100.7	106.3
Soviet Union	-	14.2	23.4	28.9	33.3	40.7	28.2	31.8
Japan	2.3	11.0	20.0	24.3	29.7	37.6	44.8	34.7
Canada	36.3	38.3	60.6	60.6	73.3	74.1	83.6	90.7
Switzerland	4.6	8.7	10.3	11.4	13.6	16.8	19.7	20.1
	363.1	568.0	777.1	891.3	898.8	991.8	1059.1	1097.8

Source: Commonwealth Secretariat, London. Review of Trade, 1962 and 1966.

Table 7.

[illegible][1] imports of canned fruit from foreign countries

000 tons.

	1934-38	1938-39	1939	1951	1952	1953	1954	1955	1956	1957
[illegible] and Belgium	18.2	25.0	21.1	23.6	24.4	19.7	18.7	21.5	26.2	22.2
U.States	3.2	3.8	3.0	5.0	6.1	8.7	7.9	10.1	10.3	7.6
British Guiana	1.3	1.9	1.3	2.1	0.9	1.7	1.8	0.8	3.1	3.3
Japan	1.9	3.6	2.4	2.5	3.3	3.8	5.2	5.1	3.2	4.2
Formosa	3.0	3.2	2.3	4.3	2.7	1.2	1.6	1.9	2.8	1.8
Philippines	-	-	-	0.3	3.3	3.0	3.6	4.8	5.9	7.8
	27.2	38.9	31.3	48.4	48.7	38.1	38.8	44.2	51.3	47.1
All countries	109.4	278.8	307.9	321.8	335.6	317.3	340.7	323.9	361.6	347.2

Source: Commonwealth Secretariat,London. Fruit, 1958 and 1962.

1. Preserved in syrup.

Table 8

Irish Sweep imports of canned fruit from dependent countries.

'000 long tons

	1959	1960	1961	1962	1963	1964	1965	1966
Malaysia	2.3	2.9	3.6	5.1	3.2	6.8	9.6	8.0
Kenya	0.8	0.5	0.4	1.8	2.2	1.0	0.4	-
Philippines	-	-	-	10.0	8.9	5.7	4.7	6.0
Taiwan	20.1	16.4	15.4	14.3	10.4	16.6	26.1	20.2
Argentina	5.8	1.9	2.2	0.1	2.2	0.4	2.6	0.9
	28.0	21.7	22.1	31.3	31.1	30.5	43.4	35.1
All sources	101.3	114.7	106.2	212.3	198.6	213.4	278.3	225.4

Source: Commonwealth Secretariat, London. Review of Trade.

Table 9

Imports of canned fruit into France from developing countries

000 long tons

	1961	1962	1963	1964	1965	1966
Kenya	-	-	-	-	-	0.3
Mediterranean	9.5	7.2	7.6	7.6	8.6	8.7
Morocco	10.3	12.1	9.3	13.4	14.7	18.7
Ivory Coast	4.0	4.6	7.6	9.4	10.0	10.8
Tunisia	1.4	2.3	1.4	3.0	1.0	2.1
	25.2	26.6	25.9	33.4	34.3	40.6
All sources	27.2	31.4	30.3	41.0	41.3	55.0

Source: Commonwealth Secretariat. Review of Trade.

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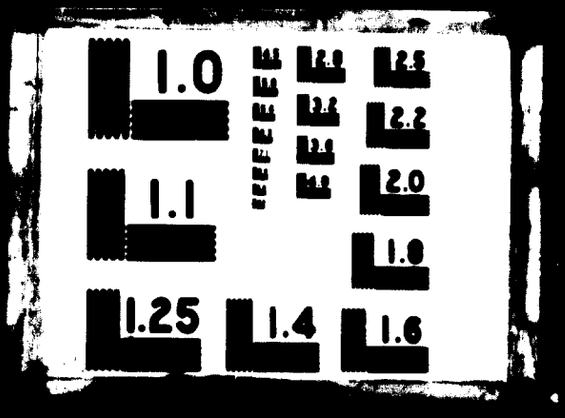


Table 10.

Exports of canned meat from certain countries

000 long tons

	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968
Argentina [1]	99.7	61.0	51.6	66.3	56.7	78.4	48.2	36.7	64.1	91.9	83.2
Brazil [2]	8.5	27.4	8.0	13.2	8.8	5.7	7.4	16.5	7.7	4.8	11.6
Paraguay	11.4	16.3	11.8	14.6	13.6	14.5	15.3	18.5	9.9	10.7	11.0
Uruguay	6.5	6.1	7.4	7.5	8.8	9.7	8.2	10.3	4.1	1.9	6.1
Tanzania	2.4	4.6	5.3	6.1	6.8	4.5	5.2	5.0	7.4	5.8	4.0
Kenya [3]	1.1	2.8	2.8	4.0	4.7	4.3	2.6	3.4	4.5	5.2	4.0
Yugoslavia	12.3	17.9	20.8	23.1	20.7	23.4	29.8	35.8	22.9	23.6	19.4
Poland	27.6	31.0	35.2	36.4	36.8	40.4	43.2	47.1	49.7	51.3	50.0
Denmark	64.3	67.2	68.8	74.2	87.0	92.7	94.8	115.7	138.5	133.9	154.6
Netherlands	56.7	58.9	66.1	69.0	65.2	63.8	70.2	73.8	86.3	94.7	102.9
Total	290.5	293.2	248.8	314.4	309.1	337.4	324.9	362.8	394.1	423.8	446.8

Source: Commonwealth Secretariat, London. Reviews of Meat.

1. 1966-68, recorded imports into U.S., West Germany, U.K.
2. 1966-68, recorded imports into U.S., U.K.
3. 1968, recorded imports into U.K.

Table II.

Imports of canned meat into principal importing countries

000 long tons

	U.K.	West Germany	U.S.A.	Canada	Sweden	Netherlands	Italy	Hong Kong	Total [1]
1958	192	22	105	10	-	3	3	2	337 (145)
1959	197	24	96	9	1	2	3	3	335 (138)
1960	188	18	91	6	2	2	5	2	314 (126)
1961	198	20	98	8	3	2	5	2	346 (148)
1962	188	19	106	6	3	3	6	3	334 (146)
1963	170	25	123	7	3	4	10	3	345 (175)
1964	176	34	108	6	4	5	7	7	347 (171)
1965	159	40	132	7	5	5	7	7	362 (203)
1966	164	45	151	9	4	6	8	7	394 (230)
1967	188	48	156	12	5	5	6	10	430 (242)
1968	179	55	172	11	5	6	7	8	443 (264)

Source: Commonwealth Secretariat, London. Reviews of Meat.

1. Figures in brackets excluding the U.K.

Table 12

Imports of canned meat into U.K. from developing countries.

000 long tons

	1962	1963	1964	1965	1966	1967	1968
Tanzania	5.9	4.2	5.2	5.0	6.0	3.9	3.8
Kenya	4.7	4.2	2.9	3.1	3.9	4.7	3.7
Argentina	26.8	26.3	18.2	9.1	14.0	32.5	34.6
Brasil	2.6	1.0	0.6	0.8	1.3	1.7	2.7
Paraguay	6.3	4.9	6.1	4.6	3.6	4.9	4.4
Uruguay	3.4	2.8	1.6	1.3	0.4	0.3	1.6
	49.7	43.4	34.6	23.9	29.2	48.0	50.8
All sources	187.5	169.8	176.0	159.1	164.1	187.6	179.3

Source: Commonwealth Secretariat. Reports on Meat.

Table 13

Production of canned fish — 000 metric tons

	1953	1959	1961	1963	1965	1967
Argentina	8.7	8.4	8.6	12.3	17.5	10.9
Brazil	-	15.5	10.1	15.5	29.5	23.5
Chile	2.6	2.8	3.2	4.3	5.7	7.4
Ecuador	-	1.2	3.7	3.6	3.3	4.7
Mexico	7.1	8.0	8.3	10.6	11.2	19.1
Peru	-	21.9	24.0	20.5	15.0	12.7
Venezuela	7.8	16.2	11.0	22.3	25.0	23.2
Morocco [1]	44.4	34.7	41.1	39.0	53.8	54.0
Portugal	4.2	5.1	7.5	12.6	20.3	15.7

Source: UN Statistical Yearbook 1968

1. Prior to 1964 export data only.

Table 14

Imports of canned meat into developing countries.[1]

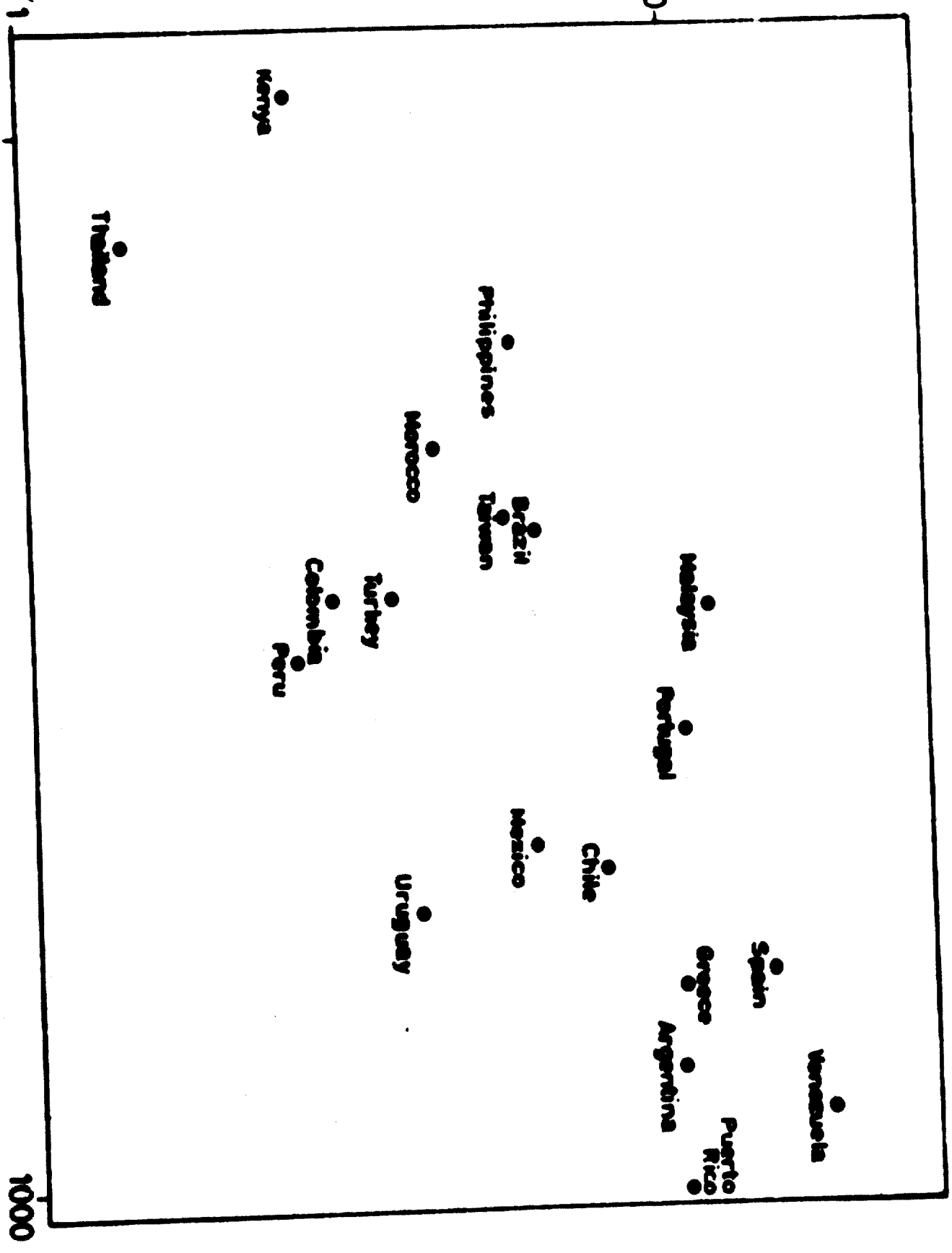
000 metric tons

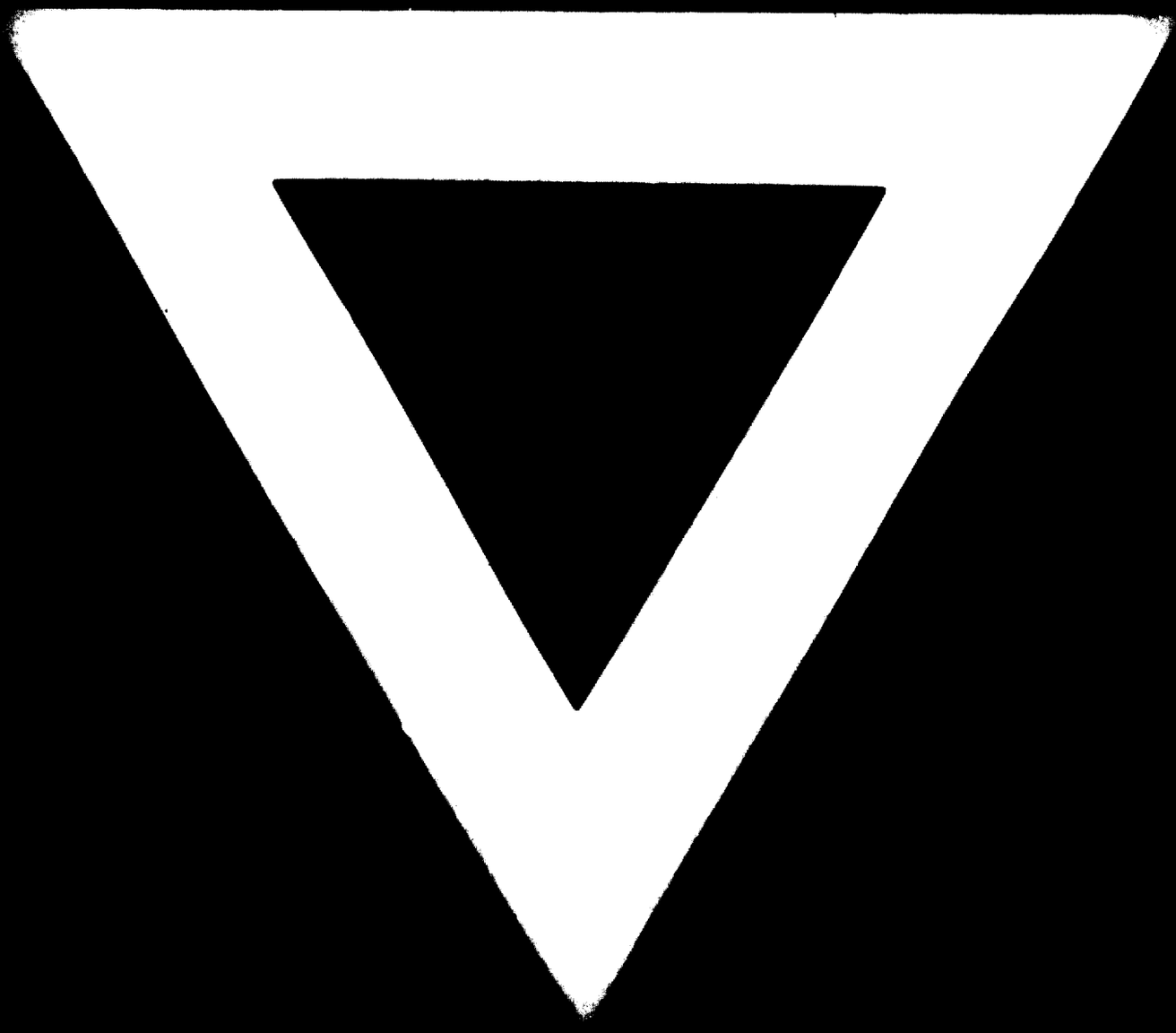
	1961	1962	1963	1964	1965
Europe					
Greece	1.33	1.35	3.46	4.52	6.71
Malta	1.52	1.62	1.91	1.64	1.85
Spain	1.34	1.54	2.89	4.24	4.45
Cyprus	1.57	1.29	1.21	1.41	1.51
Total	5.76	5.80	9.47	11.81	14.52
Asia					
Hong Kong	2.34	2.88	3.20	6.27	6.37
Lebanon	1.49	1.57	2.48	2.21	1.28
Malaysia	2.35	3.05	3.43	5.33	6.47
Philippines	6.14	9.20	5.75	7.17	6.76
Syria	0.84	1.05	1.25	1.23	1.23
Total	13.16	17.75	16.11	22.21	23.11
Africa					
Algeria	8.44	4.64	0.98	1.02	1.12
Ghana	2.67	2.14	1.12	1.88	3.29
United Arab Republic	1.07	1.29	1.65	2.76	3.54
Total	12.18	8.07	4.75	5.66	7.95
Oceania	8.65	6.71	8.39	8.48	9.82
Combined total	39.75	38.33	36.72	48.16	55.40

Source: GATT International Trade Centre, The Market for Canned Beef, Geneva. 1967.

1. Excluding meat extracts, meat juices, and sausages.

Apparent tinplate consumption per head, 1967, in lbs. Log scale





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