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COVER: Fuel can be saved through reductions in speed, the use of car pools and a shift to smaller automobiles, but also by providing more—and more efficient—public transport. See page 13.

PHOTOS: Cover: Almas; page 8: FAO; page 11: USIS; page 15: Serge de Sazo-Rapho; page 29: Université François Rabelais, Centre d'Etudes Supérieures d'Aménagement (CESA), Tours; page 33: Dominique Roger - Unesco; page 37: Information Department, SAAB-SCANIA; page 41: L. Jouan - OECD.

CONSEQUENCES OF THE OIL PRICE RISE:

The Need for International Action

*Highlights from the speech of OECD's Secretary General,
Emile van Lennep, to the Consultative Assembly of the Council
of Europe 23rd January 1974.*

For the OECD countries three main types of problem result from the very sharp increase in oil prices. One problem is that a new twist is given to the *price-wage spiral*. There is the likelihood that, in the immediate future, the price increase will rise beyond last year's 10 per cent rate into the 'teens. The longer that anything like a double-figure price rise is continued, the greater the danger that inflationary expectations will become engrained in our thinking and in our economic behaviour.

This means that a renewed attack on the problem of inflation, using all the available weapons, must be made by OECD countries acting simultaneously, for when inflation is so widespread a phenomenon as today, the efforts of individual countries are bound to be frustrated unless they are matched by equal efforts on the part of all.

Another problem is the danger of an unwanted *contractionary effect on the general level of economic activity and of employment*. Income which would have been spent by OECD residents is being transferred to oil-producing countries. If they spent the whole of their increased income on purchases of goods and services, there could be no threat of recession. But for a number of them it is certain that, in the short-run, they will not be able to step up their expenditure in line with their incomes. Moreover, sharply rising oil prices may cause a general climate of uncertainty in OECD business circles.

These potential contractionary effects on activity and employment may, at least in part, be offset by other expansionary elements. The appropriate inter-governmental bodies in OECD keep the prospects for demand and employment under continuous review, and discussions in the early weeks of 1974 suggest that governments are alert to the possible depressive effects of the

energy price rise and to the importance of taking action to support demand if and when appropriate.

A third problem area concerns the *balance-of-payments*. Higher oil prices will raise the import bill of OECD countries: a figure of around \$50 billion—which already allows for some economies in the use of oil—is an approximation of the higher bill for the first year. In normal cases, a rise in the bill which an OECD country has to pay for its imports could be expected, rather quickly, to be followed by an equivalent rise in export possibilities. But because the oil-producing countries cannot in the short run be expected to use more than a small fraction of their additional earnings for stepping-up their own purchases, OECD countries will be unable, as a group, to raise their exports in step with their import bills. For this reason, OECD countries, taken as a whole, are going to have to see their balances of payments swing from a normal sizeable surplus on current account to large deficit. For illustrative purposes only, instead of earning a current account surplus of around \$10 billion in 1974, OECD countries taken as a whole could go into deficit to the tune of \$30 billion. If individual countries seek to escape this swing, it will only mean that the balances of other OECD countries have to swing further into deficit.

This swing does not, of course, mean that the area will have an *overall* deficit on the balance of payments and a net loss of reserves. The oil-producing countries will certainly in one form or another, invest their unspent earnings in the money and capital markets of the OECD area. Nonetheless, a change of this order of magnitude in the *structure of the* OECD's balance of payments can only be digested if governments take a highly rational and sophisticated view of the position, and convince markets that this is going to be so. If countries struggle to offset the impact which higher oil bills have on their current

balances, we could witness a spiral of competitive—and mutually-frustrating—devaluation, deflation and trade restrictions—the disastrous spiral which we witnessed between the two World Wars. Governments could take this path through a simple failure to accept that, for some time to come, current account deficits will have to be the order of the day.

More likely, perhaps, will be a fear by individual governments that they may be unable to attract, to their own shores, a sufficient part of the return flow of capital from oil-producing countries to offset their current account deficits. A further danger may be that OECD countries, in the attempt to ensure that they attract a sufficient share of the return flow of capital, will engage in a competitive escalation of interest rates that would raise the cost of credit to levels inappropriate from the point of view of the general expansion of activity.

To avoid these dangers emanating from the changed balance of payments situation will require an important measure of agreement, inside the OECD, as to the aims which each country should now set itself on current account. Only thus shall we escape the danger of seeing OECD countries scrambling, individually, to preserve or create for themselves current account surpluses which the area as a whole cannot, over the next few years, achieve. The task of seeking agreement on individual balance of payments aims is not new to OECD. We went through a very similar experience in 1971, and without the understanding reached between countries on that occasion, largely through OECD's Working Party No. 3, I do not think that the Smithsonian exchange rate agreement, and the further devaluation of the US dollar in 1973, would have been possible.

But the adjustments that now have to be accepted, are far bigger than the ones we had to negotiate at the time of the Smithsonian realignment. And in the present case, questions of aims on current account cannot be discussed without, at the same time, discussing what is going to happen to the capital which will be flowing back from the oil-producing countries. For we cannot expect an individual OECD country to resign itself to a rather sizeable current account deficit unless it is reasonably confident that it can obtain a sufficient capital inflow to finance it.

An urgent task is, therefore, to consider what steps need to be taken to enable the very large amounts of capital that will henceforth be flowing out of oil-producing countries to be made available in the geographical locations—and in the forms—that will most facilitate the continued expansion of world trade and employment. Stable conditions in the international monetary system—which are in the essential interest of all countries—are unlikely to prevail unless the vast capital sums flowing from oil to non-oil countries are invested in a reasonably stable form and unless they are channelled directly or indirectly—through

the markets or by other means—to recipient countries in rough proportion to their external financing needs. It is encouraging that discussions on this problem have already begun.

Immediate Problems for the Developing Countries

One obviously important group of countries to whom part of these funds should be channelled are the less-developed countries who are not, themselves, producers of oil. The facts speak for themselves—and in an alarming fashion.

These poorer countries are likely, in 1974, to find their oil bills put up by something near \$10 billion as a result of the recent price rises. This would just about wipe out the whole of the official development assistance that the OECD area makes available each year to these countries. For some developing countries, the higher oil bill will amount to about half their existing earnings from exports.

The new conditions faced by developing countries call for three major policy imperatives:

- *First*, existing official development assistance programmes must not be slowed down or reduced. This would worsen the difficulties of developing countries and would only add to our own problems.
- *Secondly*, the developing countries that are worst hit will need special help, largely in the form of cheap loans, to enable them to adjust their economies and balance of payments to the additional burden.
- *Thirdly*, the new problems also present new opportunities. There is going to be a substantial rise in world savings since the oil producers will not be able to spend all their extra revenue. It should be possible to find ways by which part of these savings can be mobilised to accelerate economic progress throughout the developing world.

Thus in the present situation, there are clear dangers of uncoordinated policies which would lead to over-reaction both to the inflationary and to the recession threats; of isolated moves to compensate the impact on foreign trade of higher oil prices; of cutting on development assistance thus aggravating the situation of non-oil producing developing countries; of going to a sterile confrontation between oil-consuming and oil-producing countries. Such policies would be both inadequate and self-defeating. What is required, on the contrary, is increased co-operation at all levels to solve problems common not only to the industrialised countries but to the international community as a whole, including in particular the oil producing nations.

Longer-Term Problems of World Energy Supply

The suddenness of the price change over the last few months should not obscure the fact that both oil producers and oil consumers have a common interest in a price for oil which correctly reflects the longer-run supply and demand for oil and alternative sources of energy.

Looking first at this question from the point of view of the *oil-producing* countries, we should recognise that they themselves face difficult problems in the pricing of their oil. In particular, it would be wrong to describe recent decisions by the oil producers as simply the actions of strong monopoly producers who can fix the level of output or prices of their product without concern for the future.

- *First*, the oil producers are having to exploit a depletable asset. How fast, at any given rate of consumption, their oil reserves will be depleted varies from country to country—and this, in itself, may be a source of difficulty for the producers when they seek a common approach to their problems. The task of government in any traditional oil-producing country is to ensure that its oil is traded on optimal terms. On the price at which they sell their oil will depend their ability to raise the living standards of their own populations, and diversify their economies against the day when their oil runs out or is in less demand. If the price is set too low, their incomes may prove insufficient for their future needs—and some of them will see their oil resources disappearing at an alarming rate. If the price is set too high, they will enjoy great prosperity for a short while—but the higher the price the shorter the period, because the faster will be the action which their customers take to economise on traditional oil sources and to develop alternative energy supplies.

- A *second* very real problem for the oil-producing countries is to find suitable forms in which to hold their earnings until such time as they wish to use them. It is both in their interest and that of the rest of the world that these investments should as far as possible go to increase the productive potential of the world economy. But at the rate at which these assets seem now likely to accumulate, this may not be easy to achieve.

Now let us look at these same problems from the point of view of the *industrialised* countries. It should first be noted that OECD countries are important producers of energy. Indeed, in 1971 about two-thirds of the energy consumed in the OECD area was produced from indigenous sources. Moreover, there is much potential for future development. Although OECD countries account for only some 10-20 per cent of estimated world

reserves of crude oil, their reserves of all fossil fuels, including coal, shale oil and tar-sands, probably account for the major part of the world total, sufficient—at a cost—to meet foreseeable needs.

The main question now before these countries is how fast they should, in fact, develop alternative sources of energy. This is where any rational person should see that the interests of the OPEC countries and the OECD countries really coincide. *First*, because investment in alternative forms of energy is extremely costly, and can have extremely damaging effects on the environment. Therefore, it is in the interest of OECD countries not to move faster in this direction than they have to. *Second*, because it is not in the interests of the OPEC countries if the industrialised countries were to embark on costly programmes for energy diversification which might, in time, seriously reduce the earning power of the OPEC countries before they have had time sufficiently to diversify their own economies.

The speed with which OECD countries build up alternative energy supplies will depend, essentially, on the cost of imported oil in relation to the cost of the alternatives. If the cost, in OECD countries, of imported oil is well above the cost of comparable alternative sources of energy (in economic parlance, if the substitution price is exceeded), a wild and wasteful scramble for national independence through the exploitation of indigenous energy resources will be set in motion with all the attendant disadvantages to OECD countries and oil-producing countries alike. If, on the other hand, the price of oil is too low, there will be a wasteful use of the oil producers' valuable but exhaustible asset, while in OECD countries the incentive to invest in alternative energy sources will be insufficient to prevent at some stage, an energy crisis of far more serious proportions than today.

This is why I think that the price of oil in the next few years is going to be a matter of common interest to all countries, an area in which international consultation can yield important longer-term benefits for all. The issues concerned cannot be limited simply to the question of oil prices. They cover a wide range of associated economic questions concerning supply, the development problems of the OPEC countries, investment outlets for OPEC countries' savings, and (urgently I trust) those developing countries which are not producers of oil.

All these are questions which can now profitably begin to be discussed in appropriate broad intergovernmental forums. And, when they get under way, the discussions will benefit from the work which, in many of the important areas, has recently been done inside the OECD, including, in particular, the Organisation's comprehensive assessment of long-term energy trends. I hope we can now carry these discussions forward into the wider intergovernmental arena.

WHAT CAN BE LEARNED FROM RECENT DIFFICULTIES IN AGRICULTURAL MARKETS ?

by A. Simantov
OECD Director for Agriculture

It seems appropriate in these early days of 1974 to look at the agricultural situation in perspective, to try to interpret the events which have occurred over the last eighteen months or so and to consider whether the change that has taken place is a fundamental one or merely an incident having no impact on longer terms trends.

What has happened over the last eighteen months is the result of imbalance on a world scale between supply and effective demand for many foodstuffs, demand having risen faster than output. As a result of this imbalance there has been a large drop in stocks of the staple commodities and a general rise in prices all along the agriculture-food chain. This is the reverse of the situation which prevailed over most of the two previous decades when production was rising faster than effective demand, when stocks were disquietingly large and when farm prices could only be maintained through government action.

The Causes of Recent Developments

Three groups of factors are responsible for recent trends. Although the three are interdependent and have been operating simultaneously, they are nonetheless distinct: they have arisen from very different sources and at different times. First, there are the long-term trends underlying the present situation; second, the short-term factors affecting agricultural production; and third, the impact of world-wide inflation on the food situation.

• *Long-Term Trends*

For many years the long-term trends in world agricultural production were greatly affected by the existence of substantial stocks of farm products, especially cereals and butter. These stocks, which were very expensive to maintain, made it possible to undertake programmes of food aid and provided an incentive to reduce production in countries where there were surpluses. As a result, the world had a sense of security about food supplies, at least for the medium term, although analysis of the longer-term trends at work shows a rather different picture.

In reality agricultural production in the developing countries was not expanding fast enough to permit a significant increase in available per capita supplies. In many regions it took the "Green Revolution" of the late Sixties to ward off an actual decline. And

even so, doubts arose in some quarters as to whether a sustained rate of production growth could be maintained over a longer period.

In the industrialised world, increased self sufficiency in food and the technological possibilities for increasing output over and above what the market could absorb led to large-scale action to reduce production in the major exporting countries. As a result the rate of growth of agricultural output slowed down in the developed countries.

As to the main planned-economy countries, the transformation of their productive structures had not kept pace with the new requirements created by economic development, and this was particularly true in the case of proteins. At the same time governmental policy was directed more towards satisfying consumers' needs than it had been.

Consequently stocks—especially stocks of wheat and soya beans—declined progressively. The decline was even more pronounced in relation to world trade. Thus almost without realising it, the world moved into a situation of insecurity regarding supplies, at the mercy of unforeseen contingencies like those which were to occur in 1972/73.

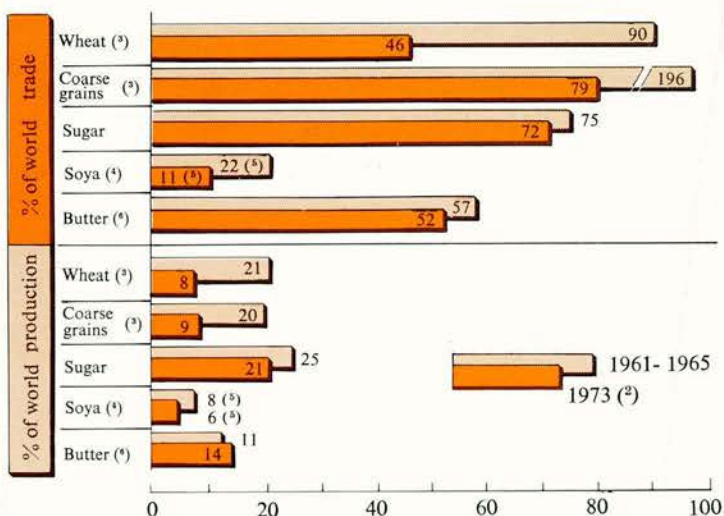
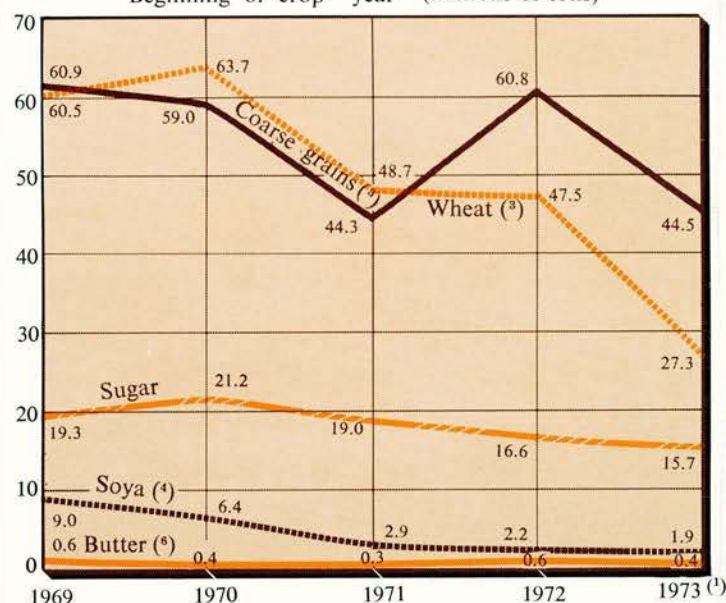
• *Short-Term Factors*

This slow and therefore imperceptible process was aggravated in 1972 and 1973 by certain short-term factors with surprisingly wide-ranging effects. The main factors were the drop in production of fishmeal, the substantial purchases of cereals and other farm products by such countries as the USSR and China, and the renewed demand for such natural fibres as wool and cotton.

The animal feed industry, in its search for protein-rich products had become a large-scale consumer of fishmeal in the late Sixties; so much so that over one-third of the protein requirements of many pig and broiler production units in the industrialised countries were covered by fishmeal, more than a third of the total being obtained from Peru. The substantial decline in Peruvian production (from over 2 million tons in 1970 and 1971 to under 900,000 tons in 1972) further intensified the demand for soya cake—another protein-rich product widely used for animal feed since the end of the Sixties, especially in Europe and Japan. This switch of demand to soya coincided with the emergence of new large-scale buyers of soya, like the USSR, causing prices to increase nearly fourfold in the space of a few months, from under \$3 per

A. STOCKS OF PRINCIPAL FOOD PRODUCTS

Beginning of crop year (millions of tons)



⁽¹⁾ Estimates.

⁽²⁾ 1973 stocks as a percentage of average world trade and production 1970-1972.

⁽³⁾ Argentina, Australia, Canada, Common Market (the Six), United States.

⁽⁴⁾ United States: total of stocks of soya beans and soya bean cakes in soya bean equivalent.

⁽⁵⁾ Percentage of exports and production of the United States.

⁽⁶⁾ Stocks on 31st December. All data refer to the OECD area alone.

Source: FAO and OECD.

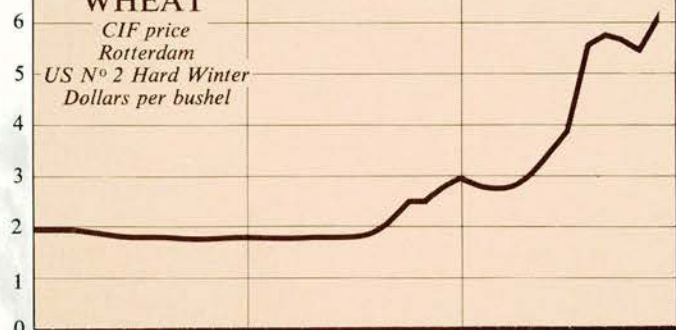
bushel on the Chicago market in November 1971 to \$11 in June 1973 (in January 1974 they were about \$6), at a time when world soya production stood at a record level.

A poor cereal harvest in both the USSR and China, occurring at a time when it was becoming very difficult for those countries to reduce domestic consumption either by raising prices or by rationing, led to purchases of cereals and other grains on a scale never experienced before. In 1972/73, the purchases over a few months amounted to some 25 million tons of wheat—about half the world transactions in a "normal" year. In addition, substantial quantities of other cereals and soya had to be imported. As harvests were also poor in other parts of the world, international wheat prices trebled. Thus, the price of US No 2 Hard Winter rose on

B. PRICE TRENDS ON INTERNATIONAL MARKETS

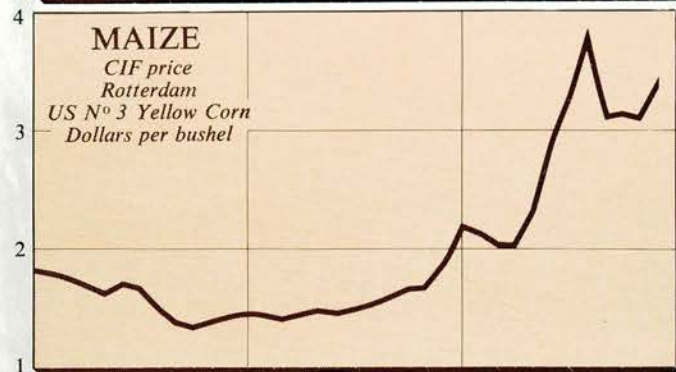
WHEAT

CIF price
Rotterdam
US No 2 Hard Winter
Dollars per bushel



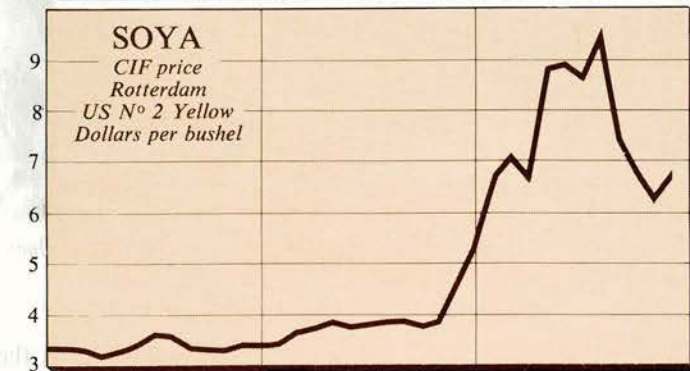
MAIZE

CIF price
Rotterdam
US No 3 Yellow Corn
Dollars per bushel



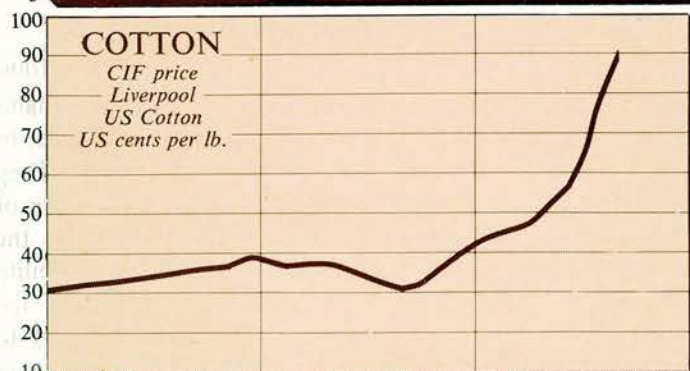
SOYA

CIF price
Rotterdam
US No 2 Yellow
Dollars per bushel



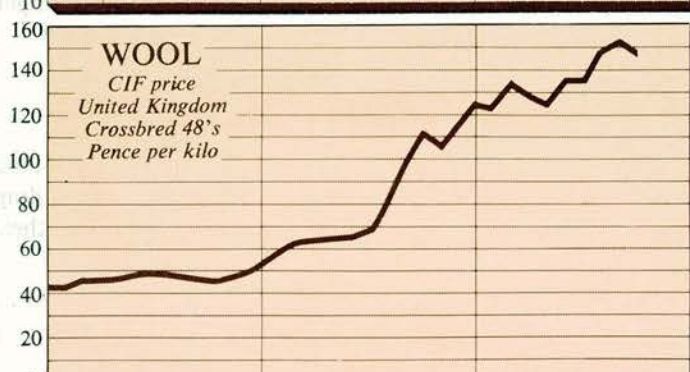
COTTON

CIF price
Liverpool
US Cotton
US cents per lb.



WOOL

CIF price
United Kingdom
Crossbred 48's
Pence per kilo



1971 1972 1973 1974



Soya beans have recently been introduced into the Dominican Republic to diversify and increase agricultural production.

the Chicago market from \$1.63 per bushel in June 1972 to the record figure of \$5.90 at the beginning of January 1974.

The years 1972 and 1973 witnessed the reappearance of acute food shortages in several areas of the world. The tragedy of Bangladesh was followed by famine in the West Sahara and Ethiopia, to mention only the most serious and dramatic examples. They drew attention to the vulnerability of production in the face of climatic variations, to the precariousness of supplies, to the inadequacy of foreign aid, and in some cases, to the impossibility of making proper use of food aid from abroad for lack of the necessary infrastructure. Even in countries which managed to avert an overall food shortage, it was impossible to avoid hunger or serious under-nourishment in some regions.

• *Inflation and the Monetary Situation*

These short and longer term agricultural trends were accentuated by the effects of the monetary situation and the inflation prevailing in most countries, even those until recently reputed for their monetary, financial and price stability.

Part of the increase in world prices for farm products (as well as other primary products) merely reflects the general depreciation of currencies. Purchases made as a hedge against monetary uncertainty may also have played a role. The inflationary situation, combined with the rise in incomes in many countries, permitted a

steady increase in world demand for food; as the inflation continued and consumers anticipated further rises in prices and wages, it was found, at least in the developed countries, that the price elasticity of demand was much less than people had previously thought. Since inflation increased agricultural production costs—mainly by raising the price of land and the cost of credit—agricultural and food prices were drawn upwards by the conjunction of two forces: rising production costs and very strong demand. Even for farm products which were in such abundant supply that their prices might have declined, prevailing agricultural policies prevented anything more than a certain stabilisation of prices.

Consequences of the New Situation

The simultaneous action of these three sets of factors—long-term agricultural trends, the short-term situation and generalised inflation—had profound repercussions both on the economy and on governmental attitudes to agriculture.

• *Rise in Farm Prices*

The first point to be noted is that in most industrialised countries food prices have, for some months past, been rising faster than

1. FACTORS INFLUENCING THE MARKET FOR PROTEIN FEED PRODUCTS IN 1972/73

('000 m. t.)

	<i>in total protein equivalent</i>	<i>in methionine equivalent</i>
Increase in the US production of soya beans: + 2.3 million tons in oilcake equivalent	+ 1,150	+ 15.0
Increase in the Brazilian production of soya beans: + 1.2 million tons	+ 480	+ 6.2
Decrease in the Peruvian exports of fishmeal: — 1.2 million tons	— 780	— 23.4
Mainland China ceased to be an exporter of soya beans: — 400,000 tons	— 158	— 2.1
Decline in the production of groundnut in Senegal as a result of drought: — 350,000 tons of unshelled nuts	— 95	— 1.0
Total resources	+ 597	— 5.3
U.S.S.R. became an importer of soya beans: + 1 million tons	+ 395	+ 5.1
Annual increase in the need for protein feeds in the OECD importing countries:		
Japan (between 1971/72 & 1972/1973)	+ 98	+ 1.6
EEC-9 (annual average 1965-1972)	+ 230	+ 3.0
Spain (between 1971/72 & 1972/73)	+ 54	+ 0.6
7 other OECD countries taken together	+ 11	+ 0.2
Total imports	+ 788	+ 10.5

prices in general. Nearly all agricultural producer prices are going up, especially those of livestock production which depends on cereals and vegetable proteins.

Retail prices seem, in certain cases, to have risen less than the corresponding producer prices, as the processing and distribution sectors have absorbed part of the increase. The question is whether these sectors have not already, in many instances, exhausted their capacity to absorb increases in raw material costs; it is quite possible that, in coming months, retail prices may rise, even if producer prices are stabilised or reduced.

With agricultural productivity rising faster than productivity in other sectors, it has so far been possible for farm prices to increase

less than prices in general; but the question is what rate of productivity growth will be possible in the coming years.

• Differences from Country to Country

The second observation has to do with the position of the industrialised countries—whether market or planned economy countries—relative to that of the developing countries. The fact is that the exportable surplus of temperate-zone farm products comes from the industrialised countries, and they have been the chief beneficiaries of the recent rise in prices. Several developing countries which are importers of agricultural commodities have had some difficulty in securing their supplies, and in certain cases may have been priced out of the market by the free play of supply and demand. The time when low prices prevailed on international markets for primary commodities such as cereals—encouraging food aid programmes and enabling many countries to buy their supplies at low cost—seems to have come to an end, at least for the present. Consequently, food aid tends to be lacking precisely when it is most needed.

• International Trading Practices

Another conclusion has to do with international trading practices. For many years, import restrictions were the main obstacle to international agricultural trade. In the course of 1973, however, many export restrictions were introduced, the most striking being the United States measures on soya and other protein products for animal feed. These restrictions were prompted by many factors, one being the desire to secure domestic supplies at reasonable prices; although soon lifted, these restrictions gave rise to great anxiety among the importing countries, and caused many governments to reconsider their basic attitude towards agricultural trade. It seems likely that a new code of ethics in international trade will now evolve. The question is whether it will be based on the abolition of obstacles to both imports and exports, or will go further to include basic national production policies. Some countries which formerly had reservations about commodity agreements are now seeking ways and means of safeguarding the continuity and stability of their supplies and of foreign markets. The negotiation of long-term contracts and the constitution of security stocks are now receiving much attention, but there is still wide divergence of views as to the respective roles of government and private trade in this field.

• Intensification of Production

One final observation concerns the intensification of farming, which in many cases has made it possible to reduce crop fluctuations and may have been a factor, though a limited one, of short-term stability on international markets. However, current pressures may incite many countries to increase their degree of self-sufficiency to such a point that the rise in output could exceed that of trade in farm products. In this case, the shrinking (in relative terms) international market might become more unstable since it would be affected in a stronger way by fluctuations, however small, in the level of output. There is also a danger that the international market might suddenly be faced with a price increase for one of the inputs which are essential to modern farming. The animal feed sector provides an example of this technological rigidity: because of the shortage of fishmeal, soya prices shot up. The risk of such disturbances on the international market is by no means negligible. The instability would be even greater if stocks, now at a very low level, did not show a substantial increase. (Continued on page 10.)

The Energy Crisis

The current energy crisis has added a new dimension to the agriculture and food problem, and analysis of its effects is still at an early stage. It may well have repercussions on both food demand and agricultural supply, and may lead to changes in the competitive position of the various commodities and the various countries and regions.

In the short term, i.e. as long as the energy crisis takes the form of a possible reduction in the volume of energy products, and especially a marked rise in their prices, it may be assumed that as economic growth slows down, the effective demand for food might be less strong than of late, in particular for the most expensive products, especially since the higher costs of agricultural production may well lead to an increase in the prices asked by farmers. If agricultural output continued to rise at the same rate as in the past, a better balance might result between supply and demand. It is, however, an open question whether agriculture could, in this phase, obtain all the energy or energy-based products it needs. Disturbances in the energy sector might lead to a reduction in the availability of such products as chemical fertilisers, especially nitrogenous fertilisers. It is quite conceivable that fertiliser exporting countries could reduce their export availabilities so as to conserve energy for other purposes of more urgent domestic importance. There is every reason to

think that the non-oil producing developing countries would be the first to be affected by the shortage of chemical fertilisers and by the rise in price of farm products, no doubt aggravated by the increase in transport costs.

In the longer term, the energy crisis should merely result in an increase in the price of most farm inputs. For many years, agriculture has benefited from a relative decline in the price of several inputs and this has enabled the industrialised countries to intensify production by steadily increasing the use of capital, while keeping the rise in farm prices below the general price trend. In the long run, a new balance will need to be reached, and it is hard to say at present what changes will take place in the whole range of prices relevant to agriculture. It may, however, be assumed that some check will be put on further intensification of agriculture in the industrialised countries which are also major exporters of farm products: in view of the current policy in some of those countries, producers would probably not feel inclined to take intensification beyond the point of remunerative marketing possibilities. In that case, pressures on farm prices would no longer be as intense as in the two earlier decades.

Consideration should also be given to the impact of the relative and absolute increase in the price of energy products on the competitive position of the various agricultural products and countries. The more intensive the production of a given product or a given country (capital-intensive that is, but not labour-intensive) the stronger will be the impact of the rise in the price of energy or

2. THE RISE IN PRICES

1970 = 100

C = Consumer Price Index

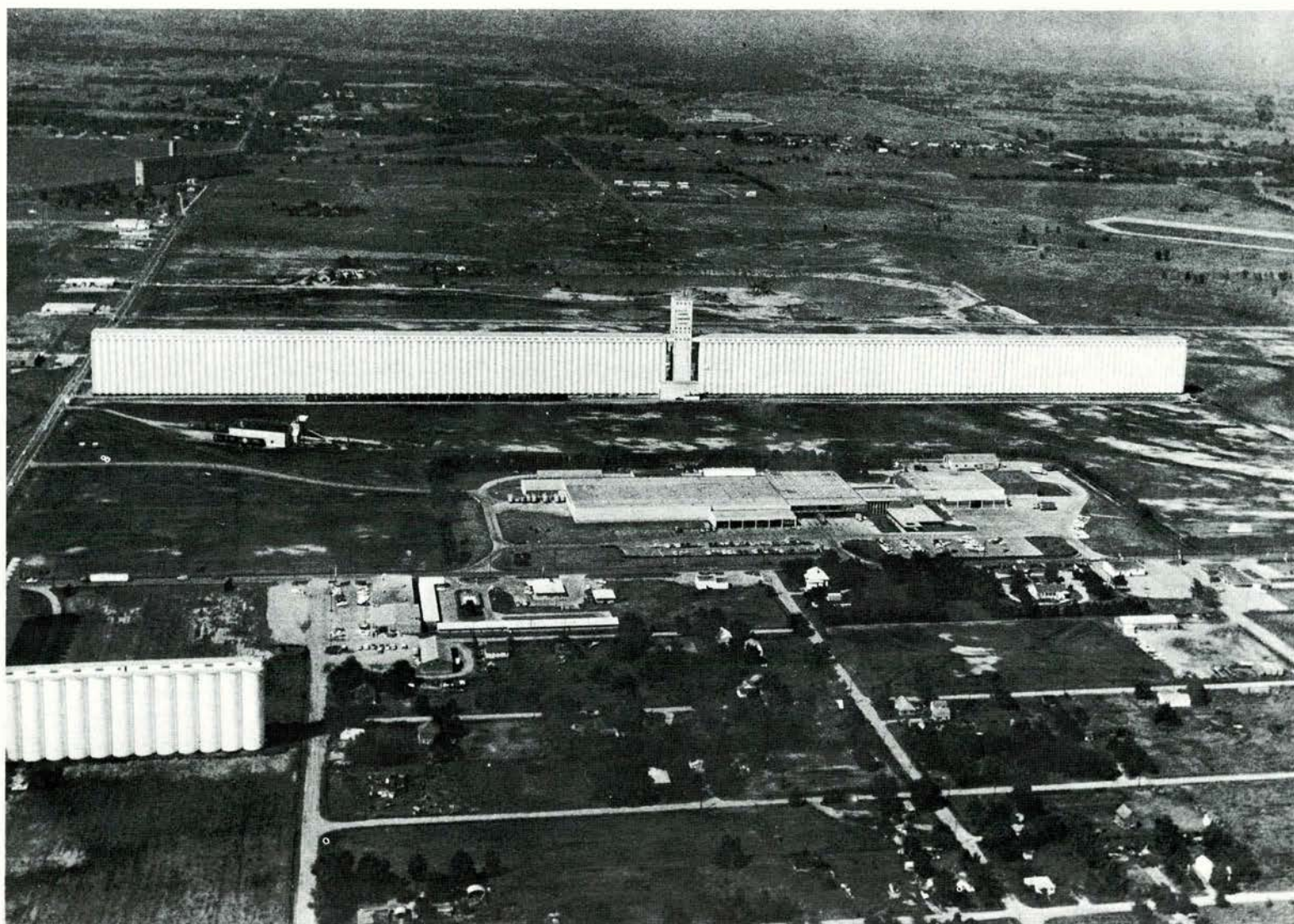
R = Retail Price of Food

W = Wholesale Price of Agricultural Products

		3rd quarter 1972	3rd quarter 1973	Percentage Increase over 12 preceding months
Australia	C	113.0	125.0	10.6
	R	108.8	128.1	17.7
Canada	C	108.8	117.7	8.7
	R	109.6	124.8	15.0
	W	109.8	148.7	36.4
Japan	C	111.5	125.8	14.2
	R	110.0	125.0	14.8
New Zealand	C	118.6	129.2	8.9
	R	114.1	125.4	9.9
United States	C	108.2	115.6	7.9
	R	108.4	127.2	18.8
	W	108.4	139.6	25.7
Austria	C	112.0	120.0	7.0
	R	111.0	119.0	5.7
Belgium	C	110.8	118.3	6.8
	R	109.8	117.6	7.1
Denmark	C	114.0	125.0	10.3
	R	117.8	135.1	14.6
Finland	C	115.0	131.0	14.2
	R	115.0	130.0	12.6
France	C	112.5	121.0	8.1
	R	114.9	126.7	10.7
	W	118.8	130.8	7.7
Germany	C	111.8	119.6	6.6
	R	111.1	118.9	5.4
Greece	C	106.0	123.0	23.2
	R	—	—	—

		3rd quarter 1972	3rd quarter 1973	Percentage Increase over 12 preceding months
Ireland	C	119.9	133.4	11.3
	R	123.4	139.9	13.4
Italy	C	111.4	124.4	11.0
	R	111.7	125.9	11.7
	W	113.5	146.1	25.7
Netherlands	C	116.3	125.9	7.9
	R	110.9	119.3	6.7
	W	93.0	124.0	14.9
Norway	C	115.0	123.0	7.3
	R	116.0	123.0	5.9
Portugal	C	124.0	141.0	16.5
	R	140.3	154.8	10.4
Spain	C	118.0	133.0	13.9
	R	120.0	137.0	14.7
	W	115.0	126.0	11.7
Sweden	C	114.7	122.1	7.2
	R	118.8	126.1	6.3
Switzerland	C	114.1	123.5	9.5
	R	114.3	119.7	4.7
Turkey	C	140.0	159.0	15.8
	R	144.0	163.3	13.4
United Kingdom	C	118.0	128.8	9.9
	R	118.1	131.2	13.3
Yugoslavia	C	138.0	164.0	17.7

Figures for Iceland and Luxembourg are not available.



Grain storage in the Great Plains of the United States

energy-based products. At the same time, the increase in transport costs will be felt particularly keenly for many farm products of low value per unit of volume or weight; depending on whether a specific product is in relatively short or abundant supply on the market, the effects will be felt in the importing or in the exporting countries.

The Lessons to be Learned

It would be too risky at this stage to put forward quantitative forecasts of the medium and long-term trends in the world agricultural and food situation, although such forecasts would be useful to governments, farmers and processors in reorienting agricultural activity in the direction required by the needs of the community. It may however be useful to draw some lessons from recent events, some of which are of immediate importance and others of longer-term significance.

There is still a wide margin of uncertainty in any forecast of agricultural production, despite the considerable progress of agricultural techniques. Farm production, especially crop production, is still governed by biological and climatic constraints which man has not yet succeeded in controlling. Uncertainties about demand and supply elasticities, and especially about farmers' reactions to price changes, persist as well.

Very slight fluctuations in output may generate price variations several times higher on international markets. In 1972/73, a 4 per cent drop in world cereal production caused prices to treble on world markets. This disproportion between cause and effect shows that the international market is by no means representative of the position for many farm products; it is, first and foremost, a residual market, on which the effects of all fluctuations are greatly amplified. The disproportion also points to the care which should be exercised in appraising the food situation. A trebling of prices might seem to indicate a serious shortage, whereas world production has fallen off only very slightly. If all countries' agricultural markets were "open", i.e. if the shortfall in available supplies were equally divided among all countries, the 1972/73 price rise would not have occurred on the same scale.

The instability of markets and the difficulties of forecasting intensify the need for substantial stockpiling of the staple commodities. The question is where these stocks should be constituted, who should pay for them, and how they should be managed. A multilateral approach to this question should be adopted rather than a series of purely national measures.

A coordinated stockpiling policy should be accompanied by the negotiation of long-term contracts. This will become increasingly important in the years to come, as known reserves of agricultural productivity gradually dwindle: since any big increase in output involves extensive financial resources—in the form of fixed investments rather than of variable expenditures—farmers

will need to have price assurances from their buyers extending over several years

Competition between agricultural and food products and substitutes will become more intense. The rise in prices of certain farm products, especially livestock products, the demand for which is likely to remain strong, will open up broader horizons for unconventional kinds of animal feed and even human food and these may come into wide use during the years to come. Such products can be generated by a complete recycling of organic materials, now a rarity, or they may be protein developed from agricultural, maritime or industrial sources.

The precarious food situation of the developing countries has clearly shown the importance of developing agriculture in those countries on a wider basis than was possible as a result of the "Green Revolution" alone. Food supplies and employment should advance together so that these countries can emerge from their economic, social and political insecurity, the root causes of which lie in the inadequacy of agricultural production. It is most unfortunate that the countries whose food situation is most precarious are precisely those having a large population and few energy resources or none at all.

Food aid will have to be organised more rationally than it has been hitherto. Although it does not offer a long-term solution, food aid reflects the inadequacy of national production and the inability to obtain the necessary supplies by participating in the international division of labour. "Surplus-disposal-food-aid" should be superseded by food aid programmed in such a way as to allow for action which will, after a time, render the aid itself less necessary.

It is likely that the planned-economy countries will rapidly approach the food standards of the other industrialised countries. At first this should provide outlets for the agriculture of the export-

ing countries, if not on a regular basis at least on a large scale from time to time. There is, however, no reason to suppose that these countries cannot increase their food production substantially, given their resources in land, manpower and energy: it may be assumed that they will solve their organisational problems sooner or later by paying greater attention to economic efficiency.

Despite the uncertainties surrounding the agricultural and food balance in the short term, it may be assumed that, generally speaking, the *dissemination of known techniques and the development of new technology*, although becoming more and more costly, will allow world agriculture, and especially agriculture in the industrialised countries, to satisfy the growing needs of the world population in the years to come: the limitation of demographic growth—which is progressing spectacularly in certain regions—might, however, become an important, even an essential, element in maintaining the food balance, or indeed any balance at all.

In Conclusion...

In conclusion, it may be said that the 1972/73 crisis revealed the fragility of the agricultural equilibrium, which can change almost overnight from a situation of relative abundance to one of relative shortage, with manifold consequences in many domains. This crisis also has shown how imperfect is our knowledge of the factors—and there are many of them—which have a bearing on food supply and demand in the various parts of the world. A better knowledge of these factors, and of their sensitivity to the different forms of action available to governments, would be extremely useful in trying to ensure that crises on such a scale do not occur again.

Work of the OECD Committee for Agriculture on agricultural markets

At the meeting of the Committee for Agriculture at Ministerial level on 11th and 12th April, 1973, the Ministers paid particular attention to the instability of agricultural markets, notably those for cereals and animal feedingstuffs. They considered it desirable to make fuller use of OECD and of its Committee for Agriculture to arrange detailed exchanges of information about probable trends in the principal markets. The joint study of the market situation and of the problems which may arise should help to avert or overcome any difficulties relating to equilibrium on world markets and the regular flow of world trade.

On the basis of this recommendation by the Ministers, the Committee for Agriculture held, on 27th and 28th September, 1973, a special meeting to consider the situation and the short-term outlook for the market for cereals and other animal feedingstuffs. The information

exchanged and the discussions held point to the following prospects⁽¹⁾: despite a notable rise in production, wheat stocks, which were already very small, might be expected to fall still further during the 1973-74 crop year, as a result of very sustained *world demand*; the position might be the same for coarse grains, although less difficult than for wheat, as the stocks at the beginning of the season were at a normal level; the very substantial increase in soya production in the United States (and Brazil) should make it possible to avoid a supply crisis similar to that which occurred at the end of the 1972-73 season; on the other hand, supplies of fishmeal do not seem likely to improve.

By and large, the situation on the principal agricultural markets thus seems very tight, and developments need to be carefully watched. Accordingly, the Committee for Agriculture proposes to hold

in early May another special meeting on the market outlook, to consider what is likely to be the position in the last months of the 1973-74 season, before the new crops come on the market, and to study the prospects for the 1974-75 season. Other subjects discussed at the meeting will be the effects of the market situation for animal feedingstuffs on livestock production, the impact of the energy crisis on agriculture, and the trend in prices. Meanwhile, the Committee for Agriculture's Commodity Working Parties (Dairy Products, Meat, Fruit and Vegetables) are regularly pursuing their work on short and medium-term market trends, and on the principal problems arising in these sectors.

⁽¹⁾ *The Report approved by the Committee for Agriculture after this meeting may be obtained from the OECD Agricultural Directorate upon request.*

THE POTENTIAL FOR FUEL CONSERVATION: THE CASE OF THE AUTOMOBILE

The current oil situation has focussed attention not only on the problem of energy supplies but also on the opportunities for energy conservation. In the following article C. Kenneth Orski of OECD's Environment Directorate examines the potential for fuel savings in transportation. The issues discussed in this article stem from OECD's Inquiry Into the Impact of The Motor Vehicle on the Environment which is currently assessing the feasibility and environmental effects of alternative methods to reduce the use of automobiles in urban areas.

While the current fuel crisis cannot continue indefinitely, the prospects for a return to the *status quo ante* are equally unlikely. Conditions will call for a re-orientation of public policies and require basic changes in private attitudes and habits toward the consumption and conservation of petroleum. Nowhere is the necessity for more prudent use of fuel more evident than in the case of the automobile. In 1971 automobiles accounted for 13 per cent of all the petroleum consumed in Europe and 29 per cent of that consumed in the United States. They were responsible for 44 and 54 per cent respectively of the petroleum requirements of the entire transportation sector (see Table 1). The large volume of oil consumed by passenger cars reflects not only their impressive numbers but also the high energy intensiveness of this personal mode of transport. The fuel efficiency of automobiles is among the lowest of all forms of transport: under certain conditions of operation, a heavy luxury car can be almost as wasteful of fuel as some types of commercial aircraft. What is more, the automobile, along with the rest of the transport sector, is singularly dependent upon petroleum.

Together, these considerations provide a convincing case for making the automobile a focus of efforts to conserve fuel.

Already several kinds of emergency measures have been taken:

• *Selective Restrictions on Driving*

Sunday driving bans (which were introduced in the Netherlands, Belgium, Italy, Germany, Switzerland, Norway and Denmark) have the virtue of being easily enforceable and of causing relatively little dislocation in industrial activity but affect adversely recreation and highway-based service industries, particularly weekend resorts. In addition, public dissatisfaction may develop if the ban is prolonged into the warm spring and summer months.

Other less restrictive driving restraints were adopted in Austria, Germany and Greece where each car was banned from the road every other weekend depending on whether its registration number ended with an odd or even digit. Even more flexible arrangements could be envisaged. For example every car owner could be required to keep his automobile off the road on one or more days a week of his own choosing, a windshield sticker indicating which day.

1. PETROLEUM REQUIREMENTS OF THE AUTOMOBILE AND THE TRANSPORT SECTOR AS PERCENTAGE OF TOTAL PETROLEUM CONSUMPTION (1971)

Petroleum Consumption	Automobiles			Transport Sector		Total
	Mtoe*	% of transp.	% of total	Mtoe*	% of total	
OECD-EUROPE	86	44	13	194	29	675
EEC	71	47	13	152	28	545
UNITED STATES	220	54	29	407	53	768
CANADA	23	70	29	33	42	78
JAPAN	18	40	8	45	21	214

* Mtoe: Million tons of oil equivalent (1 Mtoe = 10^{13} kilo calories = 3.968×10^{13} BTU's).
Source: *Statistics of Energy, 1957-1971* (OECD, 1973).

One valuable—though not unexpected—benefit of the ban on driving is its effect on air pollution levels. In Brussels, where before-and-after measurements were made, levels of nitrogen oxides on weekends decreased by 75 per cent while levels of carbon monoxide dropped by some 90 per cent. (Hydrocarbon and sulphur dioxide levels remained substantially unchanged.)

• *Limiting the Supply of Fuel*

Control over the supply and distribution of gasoline may take many forms—a weekend ban on sales (an approach embraced by Norway, Italy, Austria and the United Kingdom during the recent fuel emergency), mandatory limits on the amount of gasoline sold to customers at a single time or mandatory fuel allocation. The latter is a simple yet effective way of limiting gasoline consumption, but it raises difficult questions of political judgement and equity. For example how does one make a fair choice as to the amount to be allocated to large cities which have a rapid transit system and to smaller cities which must

rely almost exclusively on the automobile? Can one distinguish between essential and non-essential driving? While a reduction in auto use in the range of 10-20 per cent could probably be achieved without imposing undue disruption in most people's lives, the tourist and other leisure industries have come to depend precisely on people's discretionary driving. It is one of the paradoxes of modern life that many "non-essential" activities have become essential economic imperatives for a large fraction of the population.

• *Fuel Rationing*

The lack of any rational answers to such questions has led many governments to consider the mechanism of rationing. Sweden, Norway and the Netherlands introduced petrol rationing for a short time in January 1974.

The arguments for rationing are simple. Everyone is assured of getting at the regular price at least a minimum amount of gasoline. People whose cars are absolutely essential to their jobs can get extra rations. Truck operators and bus companies can be entitled to unlimited allotments.

But even the most vocal advocates of rationing concede that the approach has flaws. To begin with, how should the basic ration be allocated? A rationing plan based on auto registration favours wealthier households with more than one vehicle. A plan based on licensed drivers gives advantage to large families, regardless of the family's need to drive. Does a resident of the inner city with access to public transport have the same need as a suburbanite to use his car? Should a commuter living in a locality where train service is infrequent and erratic be entitled to more consideration than one who has access to frequent and reliable train service? The necessity to adjudicate questions such as these would extend the power of government to control matters of personal preference and choice.

• *Control Through the Price Mechanism*

By contrast, cutting fuel consumption by allowing its price to rise or by heavily taxing it would transfer the responsibility for allocation decisions to where many economists believe it rightfully belongs: the market place.

The principal criticism of relying on the price mechanism is that this approach would impose the main hardship on poor families and would funnel gasoline to those who could most easily afford it and not necessarily to those who need it most. For this reason many believe that some combination of rationing and taxes or rationing and higher prices represents the most attractive alternative. Under such a system every driver would be entitled to a basic allowance of gasoline at regular prices. Those who needed or wanted additional fuel could buy it but they would have to pay a substantial added tax. Alternatively, ration coupons could be made legally transferable for cash with their going price determined by the forces of supply and demand. The cash value of the coupons would constitute in effect an incentive to economise in the use of gasoline.

How high the tax would have to be in order to achieve sizeable gasoline savings is a matter of some debate. Many economists believe that the short run demand for gasoline is inelastic or at least enough so to require huge price increases before there was any significant effect on consumption. Opinion surveys have shown that the convenience of private transportation ranks very high in people's order of preference. According to some estimates every 10 per cent increase in price will cut demand by only 2-4 per cent. But the fact is that economists, with no

prior experience to guide them, simply do not know how motorists will respond. There is simply a suspicion that even a steep increase in price may prove to be less than satisfactory in helping to achieve sizeable reductions in gasoline consumption.

Attracting Commuters to Public Transport

The explanation for the inelasticity of the demand for gasoline lies, of course, in the fact that a great many car owners feel they have no real alternative to driving. Some commuters are unable to switch to mass transportation and those who can are often able to do so only at a great sacrifice in comfort and convenience. The key to reducing overdependence on cars, therefore, is to extend the availability and to improve the quality of public transportation service.

There are many possible strategies to make public transport more attractive to commuters. Not all improvements in public transportation require huge sums of money or lead times of many years. Examples of low-cost improvements in transit are express bus service in exclusive or reserved lanes set up on existing urban highways and streets; adoption of staggered working hours to spread travel peaks and lessen crowding in public vehicles; provision of park-and-ride facilities at suburban rail stations; promotion of the use of demand-responsive bus service for commuters to and from suburban rail stations; and incentives to form charter bus service and other arrangements for group riding.

Even a relatively small diversion of commuters to public transport could result in considerable fuel savings. In the Paris region, for example, some 30 per cent of all private automobile usage is in connection with the daily trip to work. If only 10 per cent of the daily commuters who drive to work were willing to shift to some other means of transport there could be a reduction of 3 per cent in the daily amount of gasoline consumed.

The potential of bicycles and mopeds as a serious substitute for commuting should likewise not be ignored, particularly when it is realised that some 40 per cent of urban work trips made by automobile are 6 km or less. Today the greatest impediment to the widespread use of bicycles in urban areas is the lack of safety when bicycles are mixed with motorised traffic. Creation of separate rights of way for bicycles could be viewed as a rational utilisation of road space, considering that a one-way bikeway has a theoretical capacity of some 1,700 to 2,500 bicycles per hour, which is about twice the automobile carrying capacity of a city street lane. The bicycle's manoeuvrability, ability to park close to destination, low energy requirements and non-polluting qualities make it a realistic commuting vehicle for short trips in temperate climates.

Diverting Long Distance Travel to More Efficient Modes

Important fuel savings could also be realised through a more rational organisation of intercity transport (Table 2). If the use of a car could be assured to travellers at destination, the line haul portion of many trips could perhaps be shifted to more efficient modes.

Two innovations in transportation service offer precisely this kind of opportunity. One is automobile-rail service which enables travellers to put their cars on the train for the intercity portion of the trip and to continue the rest of the way in their own automobiles. Service of this kind is already offered in

2. COMPARATIVE EFFICIENCIES OF DIFFERENT MODES OF INTERCITY TRAVEL

The table below compares the fuel requirements of an intercity round trip for a vacationing family of four and for a businessman travelling alone, under different assumptions as to travel modes. The trip involves each way a line haul distance of 1 000 km (620 miles), 200 km (125 miles) of local driving at destination and a 10 km (6 miles) access distance between home and rail or air terminal, for a total distance of 2 220 km (1 380 miles).

Mode of Travel	Fuel Consumption and Index			
	Family of 4		Single businessman	
Private automobile door-to-door (1)	275 litres 72.6 gallons	100	275 litres 72.6 gallons	100
Private automobile/auto-train (2)	77.5 litres 20.5 gallons	28	71.5 litres 18.9 gallons	26
Airplane/rented car (3)	363.5 litres 96.0 gallons	132	111.5 litres 29.5 gallons	41

(1) Standard-size passenger vehicle with fuel economy of 8 km/litre (18.5 miles/gallon).

(2) Includes a 20 km (12 miles) round trip to rail station. Fuel consumption for the line haul part of the trip is calculated on the basis of a 1 460 kg (3 200 lbs) vehicle and its passengers.

(3) Includes a 20 km (12 miles) round trip to airport by private automobile. Airplane is a medium-range jet with fuel consumption rate of 555 litres/100 km (236 gallons/100 miles). Rented vehicle has fuel economy of 8 km/litre (18.5 miles/gallon).

Europe (auto-courette) and in the United States (auto-train) and is proving quite popular. What is needed now is an extension of this transportation concept to more major travel corridors and its coupling with high-speed rail service.

Equally promising is the idea of "fly-and-drive" arrangements. Car rental already exists at most airports, but its potential is not fully exploited because it is not adequately integrated with airline service. Joint reservation and ticketing service which would guarantee the traveller the use of a car at destination as well as a seat on the plane, and which would combine the payment for both services in one ticket, might go a long way toward making this style of travel more popular.

Increasing the Efficiency of Automobile Travel

Inducing any meaningful shift to public transportation will be a gradual process, since its success depends both on changing private attitudes toward urban travel styles and on imaginative public programmes to improve service. In the short term, therefore, we must look for opportunities to conserve petroleum mainly within the transportation system as it exists today—and that means a system dominated by the use of the private passenger car.

• Promoting Higher Occupancies of Commuter Cars

The average occupancy rate for private automobile travel to

work ranges from 1.2 to 1.4 passengers/vehicle and at least 50 per cent of all cars on the road every day carry only one occupant. Obviously, even small increases in the rate of occupancy of commuter automobiles therefore would produce sizeable savings in fuel consumption. For example, an increase in occupancy rate from 1.4 to 1.7 passengers per vehicle would eliminate 20 per cent of the cars from rush hour traffic. This could mean a national fuel saving of as much as 6 per cent, assuming that trips to work represent some 25 per cent of all private vehicle travel and are responsible for some 30 per cent of all motor vehicle fuel consumed.

The problem lies in devising adequate incentives for commuters to share cars. There is no doubt that the key factor in a commuter's calculations is not cost but time. Therefore, time-saving incentives should be built into the traffic management system to favour shared automobile travel. Where toll bridges or tunnels exist, carpools could be given priority through the toll barriers in peak hours. Preferential treatment could also be given to fully occupied cars during rush hours by allowing them to use reserved bus lanes on the main commuter routes.

These non-economic inducements could be supplemented by financial incentives. For instance, carpools could be charged reduced rates at municipal parking lots and garages and, as in Philadelphia, reduced tolls on bridges leading into a city. Commuters could be further encouraged to form carpools if employers and local newspapers provided the means to exchange information regarding residence-destinations and scheduling patterns. Computer-assisted commuter matching is being used in local communities in the United States, and plans are underway to extend this service nation-wide. The results of a greatly expanded practice of carpooling would be not only savings in total fuel consumption but reduced congestion and air pollution

The one-man one-car system typical of modern cities is one of the least efficient ways of using fuel to transport people.



—an example where energy conservation goes hand in hand with environmental betterment.

• *Introducing Public Automobile Service*

The idea inherent in the concept of the carpool could be extended to other types of service. In low-density suburbs jitneys could provide the backbone of a daytime public transport service, while in city centres the concept of the shared taxi could double or treble the passenger carrying capacity of the present fleets of taxis. Sufficient evidence exists to suggest that extensive and well organised fleets of public automobiles could provide convenient transportation service to a significant fraction of urban travellers and result in substantial fuel savings. Other benefits would include reduced traffic congestion, reduced demand for parking space, lower levels of air pollution in central urban areas and greater mobility for suburban residents who do not own cars or cannot drive.

Improving the Fuel Efficiency of Vehicle Operation

Important fuel savings can also be achieved by controlling the manner in which the automobile is operated.

• *Reducing Maximum Speeds*

The energy required to drive a vehicle goes up as its speed increases. Hence, limiting speeds on highways may significantly improve vehicle fuel economy. Recent tests have demonstrated that the lowest fuel consumption occurs at a steady speed of between 50 and 65 km/hour. Cruising at 80 km/hour instead of 115 km/hour results in fuel savings of about 25-30 per cent (see Chart A).

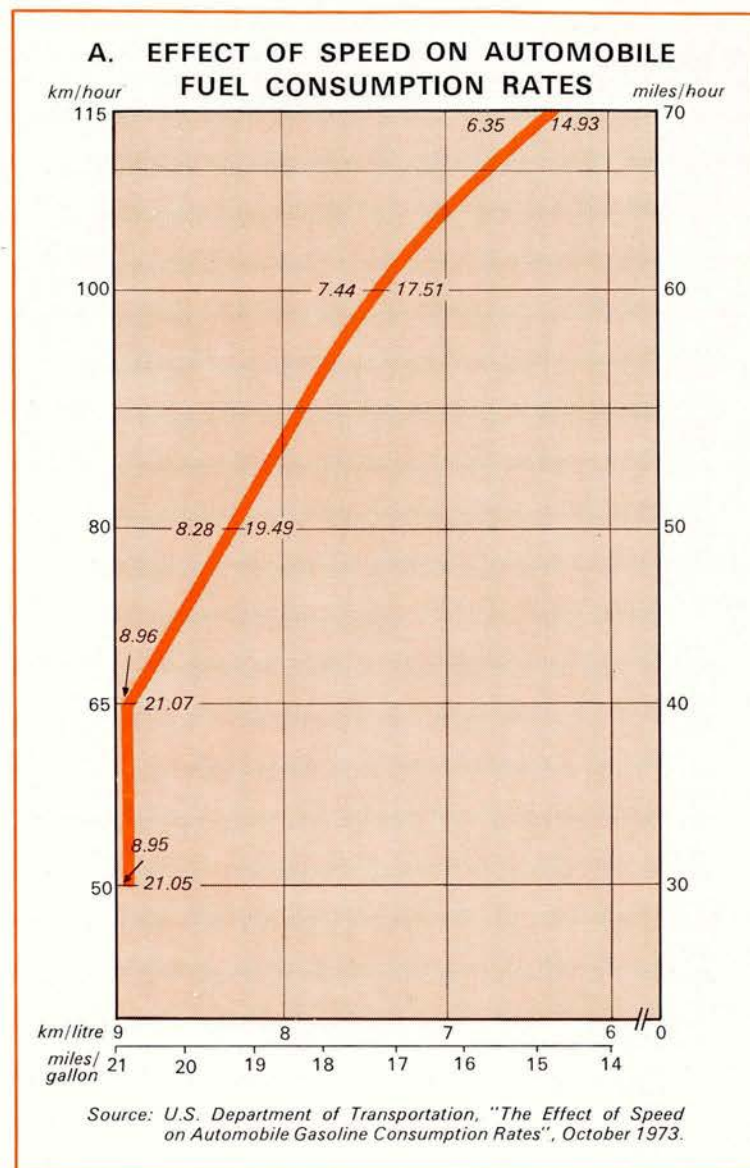
Added up over an entire nation the fuel saving benefits of reduced speeds could be substantial. In the United States, for example, estimates indicate that by observing a national speed limit of 55 miles per hour (90 km/hour) the nation can conserve 6.3 million gallons (1) of gasoline every day, or more than 2 per cent of its daily consumption.

But the benefits of speed reductions are not limited to fuel savings. They also include a marked decline in highway accidents. In France, for example, the number of highway deaths dropped by 600 in 1973—a drop largely attributed to lower speed limits enacted in July 1973; and in the United States the highway death toll dropped in November 1973 by as much as 20 per cent in states that lowered their speed limits to conserve fuel. It is estimated that the now enacted national speed limit of 55 mph may cut the yearly death toll in the United States by 6,000.

Because lower speed limits save lives as well as petroleum, they have become a popular response to the current fuel crisis. Among the nations which have recently reduced posted limits (generally down to 80-100 km/hour) are Austria, Belgium, Denmark, France (120 km/hour on autoroutes), Germany, Italy, the Netherlands, Norway, Spain, Sweden, the United Kingdom and the United States.

• *Improving Traffic Flow*

Important fuel savings can also be made at the other end of the speed spectrum—the stop-and-go driving conditions on congested urban streets and highways. Under typical urban driving conditions fuel consumption is some 30-40 per cent higher for a given distance than on the open road. Practices aimed at



improving the flow of traffic, therefore, are also effective fuel conservation measures. Among the many possible traffic flow improvements two important techniques deserve mention. One is "area-wide traffic control" which aims to adjust the timing and sequence of traffic signals in the congested central areas of the city as a function of changing traffic conditions. The other technique is that of "metered access" which is designed to ration the entry of vehicles onto a major highway by means of computer-controlled signals in order to smooth the flow of traffic. A number of cities have introduced such improvements in order to ease congestion and are thus indirectly contributing to fuel conservation.

• *Vehicle Maintenance*

Proper vehicle maintenance can also improve fuel economy. A poor maintenance of ignition system, of carburetor, air filter and cylinder compression can lead to cumulative penalties of as much as 20 per cent. An improperly tuned engine alone can be responsible for a loss of fuel economy of up to 6 per cent.

(1) Throughout this article the term "gallon" refers to the United States gallon (1 US gallon = 0.833 British gallon = 3.785 litres).

Higher gasoline prices will act as an incentive for automobile owners to maintain their cars in good condition; mandatory inspections designed to assure that cars are properly tuned would provide additional assurance that vehicles do not exceed their design standards for fuel consumption.

Improving Automobile Fuel Efficiency: Changes in Vehicle/Engine Design

Quite another approach would be to try and improve the automobile's inherent fuel efficiency. Although there are many factors that influence vehicle fuel economy, weight is the single most important parameter. A 1,000 kg car achieves roughly double the mileage of a 2,000 kg model (see Table 3), and studies have shown that each one hundred pound increase in vehicle weight results in a fuel economy loss of 1 to 2 per cent.

Partly for safety reasons and partly in response to consumer demand—or at least the auto industry's perception of consumer tastes—the size and weight of automobiles have been steadily increasing in recent years. Even models that originally were marketed as "compacts" have shown a tendency to grow and some of the very small cars, such as the Fiat 500, the 4CV Renault, and the Topolino, have been phased out entirely. The standard-size American cars have gained on the average about 800 pounds (360 kg) in the past twelve years and now weigh more than 4,000 pounds (1,800 kg). Similar trends have been at work in Europe where the average vehicle weight has climbed from 1,200 kg in 1960 to more than 1,400 kg today. The result has been a significant downward trend in fuel economy on both sides of the Atlantic. In the United States, average fuel economy has decreased by about 16 per cent in the last ten years.

Air conditioning, automatic transmission, power steering and other so-called "convenience devices" also depress fuel economy. Air conditioning results in an average fuel economy penalty of 9 per cent and can reach as high as 20 per cent in city driving in hot weather. The use of automatic transmission

can produce a loss in fuel economy of over 10 per cent, although the penalty decreases considerably in the case of heavier cars equipped with emission controls.

Other factors that affect fuel economy are the size and shape of vehicle, tyres (radial tyres, for example, result in a 3 per cent improvement in fuel economy as compared to normal bias ply tyres), axle ratio (generally, the lower the axle ratio the better the fuel economy) and engine design. Raising the engine compression ratio will generally tend to increase fuel economy because the engine will be operating at higher efficiency. Reducing the size of the engine in a vehicle of a given weight will likewise often produce fuel savings since spark ignition engines tend to be more efficient when operating near full load.

There has been considerable controversy as to how the imposition of stringent emission controls affects fuel economy. According to recent tests carried out by the US Environmental Protection Agency heavy cars (4000 pounds or more) equipped with emission control devices capable of meeting the US 1973 pollution standards have suffered, on the average, fuel penalties of as much as 14-18 per cent. Light vehicles, on the other hand, have actually shown slightly (2-3 per cent) better fuel economy compared with uncontrolled cars. In Europe current emission control requirements are expected to have no effect on fuel economy.

Higher gasoline prices will of themselves tend to promote more fuel-efficient cars as motorists become more conscious of the rising cost of driving. The sizeable shift to smaller cars experienced in recent months in the United States has shown that even the *anticipation* of an increase in the price of gasoline will cause people to modify their car preferences and influence auto manufacturers to alter the mix of cars produced. Similar patterns of consumer behaviour have been observed in Europe. In Germany, for example, the demand for larger automobiles is reported to have dropped 10 per cent while smaller cars continue to hold their own; and in France, as a result of lagging sales, the automobile manufacturers have altered their production lines to

3. AUTOMOBILE FUEL PERFORMANCE AND FUEL COSTS (in urban driving conditions)

VEHICLE WEIGHT		FUEL ECONOMY				AVG. SPECIFIC FUEL CONSUMPTION		FUEL COSTS per 16 000 km or 10 000 miles		
		km per litre		miles per gallon		litres/100 km	gallons/100 km	U.S. 55 cents/ gallon	France 1,75 F/litre	Germany 0.80 DM/litre
		range	avg.	range	avg.					
kg	lbs									
900	2,000	9-12	10	22-29	24	10	41.5	\$ 230	2,800 F	1 280 DM
1,012	2,250	8-10	9	19-25	21.5	11	46.5	\$ 255	3,100 F	1 400 DM
1,125	2,500	7-9	8	17-22.5	18.5	12	54	\$ 300	3,500 F	1 600 DM
1,237	2,750	4-10	7.5	10.5-24.5	17.5	13	57	\$ 315	3,700 F	1 700 DM
1,350	3,000	4-8	6	9-20	15	16	66.5	\$ 365	4,700 F	2 100 DM
1,575	3,500	4-8	5.5	10.5-20	13.5	18	74	\$ 410	5,100 F	2 300 DM
1,800	4,000	3-8	4.5	6.5-19	10.5	22	95	\$ 525	6,200 F	2 800 DM
2,025	4,500	3-6	4	7.5-14	9.5	25	105	\$ 580	7,000 F	3 200 DM
2,250	5,000	3-5	4	7-11	9	25	111	\$ 610	7,000 F	3 200 DM
2,475	5,500	3-4	3.5	7-10.5	8	28	125	\$ 690	8,000 F	3 650 DM

Adapted from U.S. Environmental Protection Agency data. The data on fuel economy were developed using a test procedure which simulates commuter-type driving. The above results are not indicative, therefore of highway-type driving which can be as much as 40 % more efficient.

increase the assembly of economy models and reduce the output of luxury models.

Some observers believe the need to conserve petroleum is great enough to justify deliberate incentives or penalties (disincentives) in order to accelerate the conversion toward more fuel-efficient automobiles. The question then becomes one of the nature of the government action needed. Requiring manufacturers to state the fuel economy of their models would represent the mildest form of persuasion. In the United States new cars are now required to display a label showing for each of eight vehicle weight categories the miles per gallon range of all vehicles in that category, the average miles per gallon for each category and the fuel cost of operating the average vehicle for 10,000 miles (as in Table 3). Beginning with the 1975 model year, the fuel economy of the individual vehicle will also have to be indicated.

A more direct fuel saving effect would be obtained from imposition of a tax penalising the purchase of vehicles with poor fuel economy. Proponents of this approach argue that such a charge, geared to the fuel economy characteristics of vehicles and added to the initial price of the car, would more clearly define for the consumer the real cost to himself and to society of the type of vehicle he is buying and would serve as a stronger disincentive than a gasoline tax which is spread over the life of the car and is therefore largely "hidden".

Differential taxes on engine displacement have been long in use in certain countries of Europe and quite influential in bringing about the current family of light-weight cars with small engines and good fuel economy. A more logical approach, however, might be to base the fuel conservation charge directly on the vehicle's fuel performance. Vehicles meeting a given standard, say 10 kilometre per litre, would not be taxed. Those that fell short would be assessed a charge proportional to their fuel economy characteristics. Optional features which influence vehicle fuel consumption, such as air conditioning and automatic transmission, could be assessed an additional tax. The virtue of this approach is that it would leave the automobile industry with the maximum freedom to innovate and let the vehicle manufacturers themselves decide on the most appropriate trade-offs between vehicle weight, engine size, and driving performance.

An alternative to a charge would be mandatory modifications in vehicle design or mandatory standards for fuel economy expressed, for example, in terms of minimum permissible fuel economy. This approach may be simpler and more immediately effective but, should the nature of the energy situation permit a longer and more leisurely pace of adaptation, there may be a good case for the use of the tax mechanism.

Long Term Measures

Beyond improvements in the efficiency of the conventional internal combustion engine lie the longer range prospects of much more efficient unconventional engines, entirely new propulsion systems not dependent upon petroleum and substitute fuels.

But in the long run policies that concentrate solely on improving the energy efficiency of transportation may not be enough. Lasting solutions to the growing penury of energy resources may also require some effort to minimise unnecessary movement.

Over the past 30 years decisions on where to locate housing and economic activities have been made with a growing disregard for spatial constraints. The automobile and the truck have made it possible to live, work, shop, go to school

and visit friends in widely different locations, often separated from each other by considerable distances. The benefits flowing from the dispersed land use patterns have been undeniable, both from the standpoint of enabling a more efficient organisation of the production and distribution processes and of giving people the possibility to enjoy vastly greater living space. But these spatial arrangements have also created "enforced mobility"—a condition which not only works to the disadvantage of those who do not own a car or cannot drive, but also runs headlong into the problem of the growing scarcity of land and fuel resources.

In existing urban areas where the land use arrangements have already been established, the patterns of movement and the requirements for transportation in the short run are fixed. But in newly urbanising areas it is still possible to minimise travel requirements by deliberately planning settlements so that housing, employment and community services are physically closely integrated. Even established urban areas are in a constant state of change, and a start can be made to redirect the process of their growth and redevelopment in ways that will decrease the need for transportation. This can be done by providing housing and a good environment close to places of employment so as to reduce the necessity for long commuting trips, and by clustering activities to create self-contained neighbourhoods in which distances between homes, schools, shops, playgrounds and community facilities are small enough to be covered on foot or bicycle.

On a larger scale, we can begin restructuring metropolitan areas into multi-centred regional cities within which public transport would provide efficient high-speed service between the centres while the automobile would be reserved primarily to serve the needs of local movement. Patently, these are long-term strategies whose implementation will require careful planning, public discussion and, in many countries, new powers to intervene in the workings of the private land market. But if petroleum shortages and balance of payment problems make it imperative to reduce automobile travel, changes in land use patterns aimed at minimising distances between home and work, home and school, and home and shops could prove in the long run to be the least painful—and the most desirable—adjustment that society could make.

Improved communications are another potentially powerful means of reducing urban travel requirements. Technological advances in electronics and telecommunications may enable urban residents to dial for many services which are now obtainable only by making a trip. The use of video-telephone, cable TV and tele-transmission of printed material could well reduce the need for transacting business in central offices and could become instrumental in reducing the volume of commuting. As the noted transportation planner Wilfred Owen describes it, companies in the future may provide suburban offices for the convenience of employees who can work together effectively with picture-phones and time-sharing computer systems. Reports and correspondence would be transmitted between offices as easily as making a telephone call. It will also be possible to query libraries and other information sources to obtain needed material via printed form, voice or electronic illustration.

This "community without propinquity" may not be desirable as a replacement for all face-to-face contacts. However, if the requirement to lessen our dependence on oil resources makes reductions in automobile use mandatory, the potential of sophisticated communications systems to serve as a substitute for travel cannot be ignored.

THE OECD MEMBER COUNTRIES

(1974 Edition)
10th year



The OECD OBSERVER presents in this issue a set of tables showing the diversity of the economies of the twenty-four Member countries of the Organisation. These tables set forth the final statistics for the year 1972. They are not intended to provide all the comparative data needed for an understanding of each country's economic situation in relation to the OECD group as a whole: they give some idea, however, of the economic pattern in the individual countries.

The figures have been supplied by the Department of Economics and Statistics of OECD. For further information, readers are referred to other statistical publications of the Organisation: Main Economic Indicators, Statistical Bulletins of Foreign Trade, Manpower Statistics, Statistics of National Accounts, Financial Statistics, Sectoral Statistics, Agricultural Statistics...



SYMBOLS EMPLOYED:

- () OECD Secretariat Estimate
- Nil
- Not available

Unless otherwise stated, all the figures are for 1972.

Publication of the most recent census figures has given rise to significant statistical changes as regards the population of certain countries, as compared with the last edition.

	AREA (1,000 sq. km)	AGRICUL- TURAL AREA (1,000 sq. km)	TILLAGE and temporary grassland (1,000 sq. km)	POPULATION (thousands)	INHAB- ITANTS per sq. km
AUSTRALIA	7,686.8	4,946.9	446.1	12,959	2
AUSTRIA	83.8	38.9	16.8	7,487	89
BELGIUM	30.5	15.8	8.4	9,711	318
CANADA	9,976.1	686.8	386.5	21,848	2
DENMARK	43.1	29.6	26.6	4,992	116
FINLAND	337.0	27.8	27.3	4,624	14
FRANCE	549.1	325.7	187.4	51,700	94
GERMANY	248.5	134.8	80.9	61,669	248
GREECE	132.0	88.7	36.3	8,852 1971	67
ICELAND	103.0	23.8	—	209	2
IRELAND	70.3	48.3	11.4	3,014	43
ITALY	301.2	176.5	124.1	54,344	180
JAPAN	372.3	57.4	53.9	106,960	287
LUXEMBOURG	2.6	1.3	0.6	347	133
NETHERLANDS	36.7	22.0	8.8	13,330	363
NEW ZEALAND	268.7	135.1	8.2	2,917	11
NORWAY	323.9	9.1	8.0	3,933	12
PORTUGAL	91.6	(49.0)	(43.7)	8,590	94
SPAIN	504.8	364.4	205.2	34,365	68
SWEDEN	450.0	37.3	30.3	8,127	18
SWITZERLAND	41.3	21.8	3.7	6,385	155
TURKEY	780.6	535.1	273.4	36,221 1971	46
UNITED KINGDOM	244.0	190.4	72.2	55,877	229
UNITED STATES	9,363.4	4,353.3 1969	1,910.5 1969	208,837	22

TOTAL INCREASE IN POPULATION percentage (annual average 1962-1972)	NET IMMIGRATION (+) OR NET EMIGRATION (—) including statistical adjustments (thousands)	TOTAL CIVILIAN EMPLOYMENT (thousands)	of which:		
			AGRICULTURE, FORESTRY AND FISHING (%)	INDUSTRY (%)	OTHER (%)
1.93	+ 28	5,489	7.8	35.7	56.5
0.49	+ 18 1971	3,019	16.4	41.0	42.6
0.52	+ 14	3,783	4.2	43.3	52.5
1.61	(+ 80)	8,329	6.9	30.9	62.2
0.72	+ 3 1971	2,356	9.8	34.2	56.0
0.29	+ 5	2,107	18.9	35.6	45.5
0.96	+ 110	20,677	12.7	38.5	48.8
0.82	+ 331	25,934	7.5	50.4	42.1
0.53 1961-1971	— 46 1970	3,275 1971	37.3	24.6	38.1
1.39	+ 0.4	81 1971	18.5	37.0	44.5
0.63	— 5 1971	1,037	25.7	30.3	44.0
0.67	(+ 92)	18,140	18.2	44.3	37.5
1.10	— 20 1971	51,090	14.8	36.3	48.9
0.78	+ 3	151	9.6	47.9	42.5
1.22	+ 19	4,581	6.9	36.8	56.3
1.62	+ 24	1,107	12.4	34.2	53.4
0.78	+ 4	1,649	12.3	34.1	53.6
— 0.41	(— 108)	3,042	30.6	36.6	32.8
1.06	(— 13)	12,640	27.6	37.7	34.7
0.72	— 12	3,863	7.4	36.8	55.8
1.20	(+ 22)	3,063 1971	7.2	47.5	45.3
2.52 1961-1971	. .	14,029 1970	(69.4)	(12.4)	18.2
0.45	(— 70) 1971	23,982	3.1	42.7	54.2
1.14	(+ 334)	81,702	4.2	(31.0)	(64.8)

Notes: a) Gross Domestic Product at factor cost. b) Includes stock appreciation. c) Bank of England minimum lending rate. BLEU: Belgium Luxembourg Economic Union		AUSTRALIA	AUSTRIA	BELGIUM	CANADA	DENMARK	FINLAND	FRANCE	GERMANY	GREECE	ICELAND	IRELAND	ITALY	JAPAN	LUXEMBOURG	NETHERLANDS	NEW ZEALAND	NORWAY	PORTUGAL	SPAIN	SWEDEN	SWITZERLAND	TURKEY	UNITED KINGDOM	UNITED STATES
GROSS DOMESTIC PRODUCT at market prices	at current prices and exchange rates (million US \$)	46,530	20,460	35,580	105,010	17,430 1971	13,440	196,070	257,570	12,290	600 1971	5,340	117,630	294,280	1,090 1971	46,290	5,250 1971-72	14,670	6,770 1971	44,780	41,380	29,760	16,440	154,180	1,167,290
	at 1963 prices and exchange rates (million US \$)	29,500	12,640	21,100	68,990	11,780 1971	10,110	137,340	144,410	9,480	460 1971	3,190	74,190	166,210	730 1971	23,940	3,030 1971-72	8,580	5,050 1971	28,060	24,290	16,260	12,700	106,840	860,200
	per capita at current prices and exchange rates (US \$)	3,590	2,730	3,660	4,810	3,510 1971	2,910	3,790	4,180	1,370	2,920 1971	1,770	2,160	2,780	3,180 1971	3,470	1,820 1971-72	3,730	780 1971	1,300	5,090	4,660	440	2,760	5,590
STRUCTURE OF GROSS DOMESTIC PRODUCT (%) at market prices	agriculture	(a) 6.9 1970-71	5.7	3.8	(a) 4.2	7.5 1971	(a) 12.3	6.0	2.9	(a) 17.3	. .	(a) 16.4 1971	8.0	6.0 1971	(a) 4.4 1970	(a) 5.3	. .	6.3	(a) 16.7 1971	(a) 12.8	4.2	. .	26.1	(b) 2.9	3.0
	mining and quarrying, manufacturing industry, construction, electricity, gas and water	(a) 42.5 1970-71	50.1	41.4	(a) 36.1	38.7 1971	(a) 43.9	. .	52.4	(a) 32.7	. .	(a) 35.6 1971	41.6	44.5 1971	(a) 57.5 1970	(a) 44.9	. .	36.9	(a) 43.7 1971	(a) 35.0	40.3	. .	28.6	(b) 42.7	33.6
	other activities	(a) 50.6 1970-71	44.2	54.9	(a) 59.7	53.8 1971	(a) 43.8	. .	44.6	(a) 49.9	. .	(a) 48.0 1971	50.4	49.6 1971	(a) 38.1 1970	(a) 49.8	. .	56.9	(a) 39.6 1971	(a) 52.2	55.5	. .	45.3	(b) 54.4	63.4
GROSS FIXED ASSET FORMATION	percentage of GDP at current prices	24.5	31.4	21.1	21.4	21.3 1971	27.0	25.9	26.0	29.4	30.3 1971	22.3	19.4	34.8	29.9 1971	23.2	22.5 1971-72	27.7	16.9 1971	20.5	22.0	30.0	17.0 1971	18.2	17.4
	US \$ per capita at current prices and exchange rates	880	860	770	1,030	750 1971	780	980	1,090	400	880 1971	400	420	970	950 1971	810	410 1971-72	1,030	130 1971	270	1,120	1,400	60 1971	500	970
PRIVATE CONSUMPTION EXPENDITURE	percentage of GDP at current prices	58.9	55.1	60.4	57.2	59.3 1971	52.0	59.7	54.0	68.0	63.5 1971	66.4	64.6	52.0	55.5 1971	56.0	57.5 1971-72	54.8	75.8 1971	66.3	53.7	57.5	72.6 1971	63.7	62.5
	US \$ per capita at current prices and exchange rates	2,110	1,500	2,220	2,750	2,080 1971	1,510	2,260	2,250	940	1,850 1971	1,180	1,400	1,440	1,760 1971	1,940	1,040 1971-72	2,040	590 1971	860	2,740	2,680	260 1971	1,760	3,490
CURRENT GOVERNMENT EXPENDITURE AND REVENUE (% of GDP)	current expenditure	23.5	30.3 1971	35.5	34.2	36.8 1971	29.0	33.6	34.3	23.7 1970	24.9 1968	32.9 1971	37.4	14.9 1971	28.7 1970	39.0 1970	. .	40.3	20.2 1971	20.1	40.8	22.2 1969	17.4 1971	32.9 1971	30.9 1971
	current revenue	29.3	37.0 1971	35.8	36.0	44.6 1971	38.0	38.0	39.0	27.4 1970	33.3 1968	34.2 1971	34.7	22.3 1971	35.7 1970	44.1 1970	. .	48.1	24.0 1971	23.4	50.1	27.1 1969	23.8 1971	38.6 1971	30.5 1971
OFFICIAL HOLDINGS of gold and foreign exchange 31st October 1973 (million US \$)		5,631	2,883	3,688 BLEU	4,861	759	387	8,796	32,868	1,070	99	991	5,392	12,890	3,688 BLEU	5,038	805	1,330	2,729	6,434	2,033	5,776	2,073	5,896	11,660
OFFICIAL DISCOUNT RATE 31st December 1973 (with date of last change)		. .	5.50 28-11-72	7.75 19-11-73	7.25 13-9-73	9.00 21-12-73	9.25 1-7-73	11.00 20-9-73	7.00 1-6-73	9.00 1-7-73	5.25 1-1-66	12.75 1-12-73	6.50 15-9-73	9.00 22-12-73	7.75 19-11-73	8.00 6-12-73	. .	4.50 1-9-69	5.00 21-12-73	6.00 27-7-73	5.00 12-11-71	4.50 22-1-73	8.00 3-3-73	(c) 13.00 13-11-73	7.50 14-8-73

BLEU : Belgium Luxembourg Economic Union		AUSTRALIA	AUSTRIA	BELGIUM	CANADA	DENMARK	FINLAND	FRANCE	GERMANY	GREECE	ICELAND
CURRENCY	monetary unit	Australian Dollar	Schilling	Belgian Franc	Canadian Dollar	Krone	Finnish Mark	French Franc	Deutsche Mark	Drachma	Krona
	currency units per US \$ 31st October 1973 market rates	0.671	18.210	36.880 BLEU	0.999	5.714	3.690	4.252	2.445	27.000	84.000
IMPORTS (goods only)	total (CIF) (million US \$)	4,730	5,175	15,499 BLEU	18,922	5,044	3,198	26,564	39,763	2,346	230
	from other OECD countries (million US \$)	3,786	4,322	13,203 BLEU	17,022	4,341	2,442	20,087	31,285	1,855	194
	from rest of world (million US \$) (excl. unspecified)	885	853	2,291 BLEU	1,900	703	756	6,471	8,444	490	36
	total imports as percentage of GDP at current prices	10.2	25.3	42.2 BLEU	18.0	. .	23.8	13.5	15.4	19.1	. .
	increase in volume of total imports from 1967 to 1972 (percentage per year)	2.40	12.55	11.45 BLEU	8.65	6.10	7.60	12.85	14.05	9.85	. .
EXPORTS (goods only)	total (FOB) (million US \$)	6,654	3,854	15,995 BLEU	20,178	4,330	3,079	25,739	46,208	871	189
	to other OECD countries (million US \$)	4,451	2,964	14,290 BLEU	18,137	3,706	2,295	19,659	37,154	628	161
	to rest of world (million US \$) (excl. unspecified)	2,190	888	1,624 BLEU	2,041	601	652	6,080	8,955	242	28
	total exports as percentage of GDP at current prices	14.3	18.8	43.5 BLEU	19.2	. .	22.9	13.1	17.9	7.1	. .
	increase in volume of total exports from 1967 to 1972 (percentage per year)	9.85	13.40	12.95 BLEU	9.60	7.45	9.20	13.05	10.35	10.80	. .
FOREIGN TOURISM (international transport excluded except for Canada)	receipts (millions of US \$)	198	1,679	433 BLEU	1,214	491	240	1,622	1,854	393	8
	percentage change over 1971	+ 1.0	+ 32.1	+ 17.1	. .	+ 26.9	+ 38.7	+ 11.7	+ 21.2	+ 28.6	+ 32.3
	expenditures (millions of US \$)	419	553	709 BLEU	1,442	374	159	1,344	4,513	66	8
	percentage change over 1971	+ 38.3	+ 42.0	+ 23.5	. .	+ 20.9	+ 39.5	+ 12.8	+ 28.2	+ 26.3	+ 36.1

IRELAND	ITALY	JAPAN	LUXEMBOURG	NETHERLANDS	NEW ZEALAND	NORWAY	PORTUGAL	SPAIN	SWEDEN	SWITZERLAND	TURKEY	UNITED KINGDOM	UNITED STATES
Pound	Lira	Yen	Luxem- bourger Franc	Guilder	New Zealand dollar	Krone	Escudo	Peseta	Krona	Swiss Franc	Lira	Pound	Dollar
0.410	570.700	266.800	36.880 BLEU	2.542	0.676	5.560	23.410	57.280	4.195	3.097	14.000	0.410	1.000
1,100	19,269	23,471	15,499 BLEU	17,127	1,531	4,373	2,186	6,613	7,977	8,479	1,508	27,854	55,555
1,814	13,325	11,757	13,203 BLEU	13,557	. .	3,805	1,646	4,692	6,745	7,691	1,174	19,271	40,074
1,220	5,936	11,713	2,291 BLEU	3,570	. .	568	521	1,927	1,231	788	334	8,536	15,429
139.3	16.4	8.0	42.2 BLEU	37.0	29.2	29.8	32.3	14.8	19.3	28.5	9.2	18.1	4.8
18.90	9.85	12.25	11.45 BLEU	10.60	. .	6.75	. .	9.35	5.80	10.95	. .	6.55	10.40
1,610	18,535	28,591	15,995 BLEU	16,392	1,765	3,281	1,287	3,701	8,654	6,862	889	24,342	49,676
1,485	14,127	15,588	14,290 BLEU	14,290	. .	2,806	1,002	2,756	7,322	5,317	650	16,741	33,344
158	4,203	12,999	1,624 BLEU	1,898	. .	475	274	928	1,332	1,545	239	7,526	16,328
130.1	15.8	9.7	43.5 BLEU	35.4	33.6	22.4	19.0	8.3	20.9	23.1	5.4	15.8	4.3
17.05	11.30	16.60	12.95 BLEU	13.30	. .	8.55	. .	18.95	7.80	9.95	. .	7.65	6.10
178	2,174	201	433 BLEU	762	. .	201	391	2,608	179	1,062	104	1,369	2,708
- 7.5	+ 15.5	+ 16.9	+ 17.1	+ 28.7	. .	+ 15.7	+ 28.2	+ 26.9	+ 10.5	+ 21.4	+ 64.9	+ 14.8	+ 10.2
117	1,049	774	709 BLEU	888	. .	206	153	190	677	438	59	1,317	4,740
13.6	+ 25.3	+ 52.1	+ 23.5	+ 21.0	. .	+ 21.9	+ 30.8	+ 39.8	+ 27.3	+ 19.0	+ 40.5	+ 23.8	+ 10.4

ANIMAL PROTEIN grams per inhabitant and per day, 1971 (on a new basis, and not to be compared with previous figures)				AUSTRALIA	AUSTRIA	BELGIUM	CANADA	DENMARK	FINLAND	FRANCE	GERMANY	GREECE	ICELAND
				69	55	BLEU 58	66	64	62	67	58	45 1967	• •
IRELAND	ITALY	JAPAN	LUXEM- BOURG	NETHER- LANDS	NEW- ZEALAND	NORWAY	PORTUGAL	SPAIN	SWEDEN	SWITZER- LAND	TURKEY	UNITED KINGDOM	UNITED STATES
63	44	31	BLEU 58	55	74 1970	58	32 1970	41	58	56 1970	• •	56	74

DWELLINGS COMPLETED number per 1,000 inhabitants 1971				AUSTRALIA	AUSTRIA	BELGIUM	CANADA	DENMARK	FINLAND	FRANCE	GERMANY	GREECE	ICELAND
				11.10	5.72	4.44	9.31	10.02	10.78	13.02	9.02	11.91	6.61
IRELAND	ITALY	JAPAN	LUXEM- BOURG	NETHER- LANDS	NEW- ZEALAND	NORWAY	PORTUGAL	SPAIN	SWEDEN	SWITZER- LAND	TURKEY	UNITED KINGDOM	UNITED STATES
4.96	6.69	13.98	• •	10.42	7.99	10.44	4.05	9.06	13.22	10.31	2.01	6.52	9.29

NET CONSUMPTION OF ELECTRICITY kWh per head and per year (excluding losses) 1972				AUSTRALIA	AUSTRIA	BELGIUM	CANADA	DENMARK	FINLAND	FRANCE	GERMANY	GREECE	ICELAND
				4,360	3,209	3,371	9,672	3,065	5,331	2,850	4,092	1,284	7,555
IRELAND	ITALY	JAPAN	LUXEM- BOURG	NETHER- LANDS	NEW- ZEALAND	NORWAY	PORTUGAL	SPAIN	SWEDEN	SWITZER- LAND	TURKEY	UNITED KINGDOM	UNITED STATES
1,917	2,154	3,486	7,867	3,240	5,350	14,370	884	1,559	7,897	4,251	260	4,045	8,219

ACCESS TO HIGHER EDUCATION percentage of relevant age group 1970				AUSTRALIA	AUSTRIA	BELGIUM	CANADA	DENMARK	FINLAND	FRANCE	GERMANY	GREECE	ICELAND
				23.5	13.0 1969	29.5	33.6 1971	28.7	22.1	• •	• •	• •	• •
IRELAND	ITALY	JAPAN	LUXEM- BOURG	NETHER- LANDS	NEW- ZEALAND	NORWAY	PORTUGAL	SPAIN	SWEDEN	SWITZER- LAND	TURKEY	UNITED KINGDOM	UNITED STATES
• •	21.2 1969	26.8	• •	18.3	• •	26.3	6.6	• •	27.0 1972	• •	5.6	29.3	46.5

TELEPHONES number per 1,000 inhabitants 1971				AUSTRALIA	AUSTRIA	BELGIUM	CANADA	DENMARK	FINLAND	FRANCE	GERMANY	GREECE	ICELAND
				324	207	224	468	356	270	185	249	137	360
IRELAND	ITALY	JAPAN	LUXEM- BOURG	NETHER- LANDS	NEW- ZEALAND	NORWAY	PORTUGAL	SPAIN	SWEDEN	SWITZER- LAND	TURKEY	UNITED KINGDOM	UNITED STATES
109	188	282	346	280	450	307	92	151	557	509	18	289	604

PASSENGER CARS number per 1,000 inhabitants 1971				AUSTRALIA	AUSTRIA	BELGIUM	CANADA	DENMARK	FINLAND	FRANCE	GERMANY	GREECE	ICELAND
				314	178	212	323	231	163	261	240	30	224
IRELAND	ITALY	JAPAN	LUXEM- BOURG	NETHER- LANDS	NEW- ZEALAND	NORWAY	PORTUGAL	SPAIN	SWEDEN	SWITZER- LAND	TURKEY	UNITED KINGDOM	UNITED STATES
141	210	101	289	212	317	206	74	82	291	234	4 1970	219	446

TELEVISION SETS number per 1,000 inhabitants 1971				AUSTRALIA	AUSTRIA	BELGIUM	CANADA	DENMARK	FINLAND	FRANCE	GERMANY	GREECE	ICELAND
				227 1970	213	216 1970	349	277	230	227	299	10 1970	196
IRELAND	ITALY	JAPAN	LUXEM- BOURG	NETHER- LANDS	NEW- ZEALAND	NORWAY	PORTUGAL	SPAIN	SWEDEN	SWITZER- LAND	TURKEY	UNITED KINGDOM	UNITED STATES
164	191	222	208 1970	243	245	229	49	132	323	222	3	298	449

ENVIRONMENTAL EDUCATION IN THE UNIVERSITIES

A Key to "Relevance"

Convinced that there is "an irreversible trend in all modern countries towards closer relationships between education and the community", the Centre for Educational Research and Innovation (CERI) of OECD, has published the results of a preliminary study and a series of conferences on "Environmental Education at University Level—Trends and Data". The volume deals principally with the results of a workshop held at Tours, whose University has launched a pilot French project in environmental education. The pioneer efforts of a number of other Universities in Canada, the United Kingdom and the United States are outlined, with descriptions of their guiding concepts, accomplishments, and the kind of problems which accompany any major educational reform. CERI is continuing and deepening its probe of environmental education and will issue a further report in 1974.

Environmental education is a core response to a widening concern that higher education become more "relevant" to the real world, and in a larger sense to the survival of mankind in his fragile and threatened surroundings. This concern clearly emerges from OECD's 1973 report on trends in environmental education.

New approaches to university education have in part been sparked by student and public dissatisfaction with the academic status quo, in part by the realisation that such trained specialists as chemists, highway engineers, lawyers, or businessmen have been largely incapable of controlling the sometimes overpowering side effects of single-track decisions in real life. The system of departments and disciplines which still dominates traditional university structures is now widely questioned (1).

Guidelines for Reform

Attempts at university reform have begun on many campuses. Environmental education, still in its infancy, may provide guidelines for an overall reform and restructuring of all university goals, methods and organisation.

At the Tours workshop, OECD countries endorsed environmental education for all categories of people, whether students or not, and suggested that it be based on four components—basic disciplines, integrating themes leading to interdisciplinarity, relevant problems and practical local projects.

The OECD report describes four national efforts to launch environmental education, the University of Tours, in France, the University of Wisconsin at Green Bay in the United States, the New University of Ulster in the United Kingdom, and the University of Waterloo in Ontario, Canada.

University of Tours

Man's present capacity to influence the environment, points out Prof. V. Labeyrie of the University of Tours, would have been

inconceivable 100 years ago. The time lag between analysis and application of scientific phenomena has been substantially reduced, and the scientists themselves, particularly after the atomic bomb, can no longer be unconcerned with the end use of their "pure" research. Science and technology can cause spin-offs in areas remote from those originally planned. Its force extends over time as well as space—future generations can be imperiled by action in the present. It has become dangerous to define economic or technical objectives in terms of sectors and the short-term alone.

Prof. Labeyrie, who is director of the "Centre d'Études Supérieures d'Aménagement" at Tours, states the need for a broad interdisciplinary education to precede specialisation. "Since it is impossible to arrest the trend towards specialisation, a more general type of education must be provided alongside specialised training, such that a basic knowledge of the concepts and methodology relating to the specialisms concerned can be combined with training of a more comprehensive sort, a coordinating link between different types of specialist can be forged, and the various actions thus be harmonised. Scientific bases for decision-making by political authorities, whether regional, national or international, would accordingly be provided." In the first two years, his students are introduced to environmental problems and given an understanding of the key mechanisms which control natural phenomena, the constraints imposed on man's actions, and the mathematical or graphic means to process the data.

The third year is given over to two themes—man's effect on the environment, which encompasses problems of physical planning and pollution, and the effect of the environment on man. For these questions, a gamut of individual disciplines are called into play.

In the final year, the students elect to concentrate on one of the following :

(1) *Interdisciplinarity : Problems of Teaching and Research in Universities, CERI, OECD, 1972.*

- Urban management
- Rural management
- Management of mountain areas
- Management of Mediterranean areas
- Management of tropical areas
- Management of reserved science and parkland areas.

For this final stage the student will often transfer to a university whose surroundings correspond to the type of study chosen.

Although Tours presently hopes to form a vanguard of environmental experts, Prof. Labeyrie expects that its experience in organising courses will lead to a common core curriculum for environmental study. A chief obstacle to university reform in France still remains the very narrow governmental requirements for the granting of a diploma, however.

Wisconsin - A New Approach

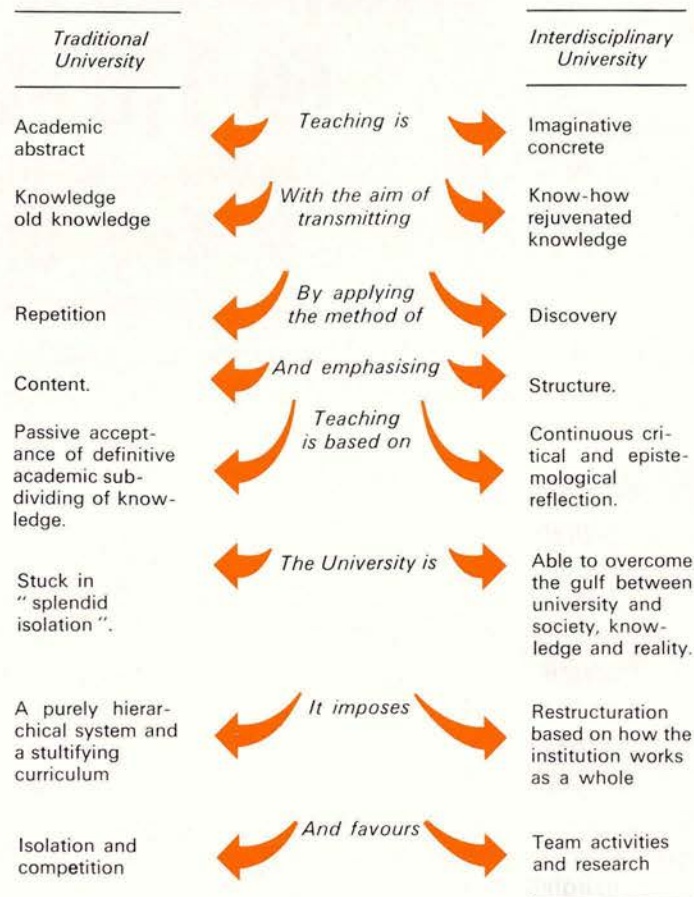
Edward W. Weidner, Chancellor of the University of Wisconsin, describes environmental education as "problem-focused", in contrast to the centuries old ideal of forming "well-rounded Renaissance men". Exploding knowledge and the proliferation of individual fields in the last 100 years have reduced this ideal to a "random sampling" of an unmanageable trove of information. For the products of this system, German students have unkindly coined the term "fachidiot", a person who has all the facts, but no idea of how to deal with the problem.

Designed for ladies and gentlemen of the upper middle class, says Weidner, traditional education is "passive in terms of society and backward looking in terms of concern". Education for citizenship in the Fifties and early Sixties aimed at forming cultured well-rounded citizens and was quite separate from training for employment. But since most citizens spend a large part of their lives on the job, a combination of the two is necessary. Environmental education is based on the ecology concept—that all professions and disciplines are linked, just as are physical phenomena in the real world.

"The presence of interdisciplinarity no longer appears to be a mere readjustment or improvement of traditional divisions in science, or better adaptation of the university to social function. It is becoming a whole battery of questions about the goals and functions of the university, and about the status of knowledge rather than about how it is divided up. Once again we find we are confronting a worldwide approach to the reality of universities. This approach can certainly carry on the scientific movement, fits a large number of its requirements, calls for tight theoretical thinking, and above all, shows that the university system is tackling more day-to-day and commonplace, less well defined issues concerning the relationship between man and the world, with knowledge, with others, and with himself" — Guy Berger, University of Paris VIII.

Interdisciplinarity: Problems of Teaching and Research in Universities, CERL, OECD, 1972.

TWO APPROACHES TO LEARNING



Source: "Environmental Education at University Level: Trends and Data", CERL, OECD, 1973.

At Wisconsin, the random sampling of knowledge is rejected in favour of relating one discipline or profession to another in view of identifying and solving actual problems. The past is studied, not for itself, but in terms of its relevance to the present and future. Decision-making, problem solving and community action are emphasised.

The "Communiversality"

Environmental education, says Weidner, requires a university-community relationship, and in what he calls a "communiversality" the professor sees the entire society as his classroom. Students go into the town and townsmen to the campus. The professors do not hand down rote lectures to a passive audience, but are considered the "No. 1 learners", studying problems with students, who participate in the choice of themes and projects.

At Wisconsin, continues the report, courses in traditional disciplines are grouped into organisational units called "options". Traditional departments have been shelved in favour of trans-disciplinary problem-oriented units called "concentrations" which control budgets, hire personnel, and plan courses, under an overall council which represents no single discipline or profession. Some 50 lay citizens lecture at the campus and participate with both students and professors in course planning. A typical "communiversality" project, one of some 20 already undertaken, is the study of a local lake and the quality of its water. University resources are combined with assistance from national and county governments to study the problem and formulate action plans to repair damage done.



Centre d'Études Supérieures d'Aménagement—University of Tours—Students and their Professor (above) pore over maps of the region as they learn practical aspects of planning. Below: the student field team inspects urban renovation in the city of Tours.



The Wisconsin approach is feasible, says the OECD report, because it is a relatively new institution which has been able to recruit professors who fully understand and believe in the new approach. Older institutions in which traditional departments have vested interests, control budgets and hold academic power, have a great deal more difficulty in instituting reforms.

Ulster - A New Concept

P.J. Newbould, a professor of biology at the New University of Ulster, defines the objective of education as "learning to live in a human society in its environment without destroying either". He sees four roles for the environmental university.

1. In training teachers who will have to carry the burden of environmental education.
2. In the education of "influential" sections of the population, e.g. doctors, lawyers, politicians, engineers, businessmen, scientists or technologists, so that they can effectively participate in the legislation and planning.
3. In the professional training of the "landlinked" professions such as farming, forestry, architecture, planning, engineering and social planning, since the management of resources including land is so complex as to require a team effort and a common vocabulary.
4. In the training of ecologists and environmental scientists who will have responsibility for research and management of activities directly related to the environment.

Pierre Duguet, of OECD's Centre for Educational Research and Innovation, speaking of the need for a common core of knowledge for all professions, warns against a mere "juxtaposition of disparate disciplines" and cites research on the establishment of "unifying themes" which can serve as a basis for reorganising courses. Examples are such major ecological concepts as the recycling of elements and the transfer of energy and matter, "alone capable of allowing knowledge to be really integrated, since these forces are themselves responsible for cohesion in the natural system".

Prof. Newbould makes a strong case for using energy as such a unifying theme, arguing that it is "the single most essential requirement of all living things". He describes the major role of solar energy in both biological and environmental systems. University curricula should be concerned with the nature of these energy systems and how to husband and control their use, says Prof. Newbould, since "energy is the key to all development".

Like Wisconsin, the New University of Ulster relates to actual community problems in what it calls multi-disciplinary site studies, in which the geographer, planner, economist, sociologist, ecologist, engineer, etc. co-operate in analysis and finding solutions to real-life problems.

University of Waterloo - a Canadian Experiment

George R. Francis, Chairman of the Department of Man-Environmental Studies at the University of Waterloo in Canada describes the work of a new environmental faculty at an institution which itself is only 15 years old. His department is one of four in a Faculty which includes the professional schools of Architecture, Urban and Regional Planning, and the department of Geography.

Man-environmental studies at Waterloo are theme-oriented, and directed by a small faculty which embodies knowledge from a number of fields such as anthropology, biology, communications science, economics, engineering, fine arts, psychology, social work, etc.

Francis relates the aims of environmental education to trying to understand better the "sheer size and diversity" of problems associated with the environment, e.g. soaring population, the awesome potential of technology, the potential global shortage of energy, food, fibre and other raw materials, the growth, congestion, decay, and pollution of urban areas, the gap between haves and have-nots in today's world. He feels that environment is a "gut issue" for the young, even though their interest in "relevance" is ambivalent, ranging from societal to very personal concerns.

Waterloo is developing studies which range over the complex interrelations of man with the bio-physical, socio-economic, and man-made physical environment. It can, he says "in no way be limited by artificial boundaries of established academic disciplines". But central to its philosophy is that the programme is conceived in terms of processes rather than contents, in forming widely adaptable skills which cross the bounds of the disciplines and teach students to assess and relate information from diverse sources with a view to problem-solving.

Francis describes the Waterloo environmental curriculum as pluri-disciplinary, flexible and problem-oriented, based on a systems mode of reasoning which provides the basis for a comprehensive analysis of man's environment and his impact on it.

Degree in Environment

The Waterloo programme covers four years and leads to a Bachelor of Environment Studies (B.E.S.) degree, which can either precede professional training for professions such as law, planning, teaching, etc. or lead to further more concentrated study in environmental specialties. Like Tours, Waterloo goes from the general to the specific.

The teaching methods at Waterloo, like those of Wisconsin, place less reliance on lecturing, faculty, libraries, and more on team-teaching, student selected-projects, involvement of non-academics and the study of off-campus situations. The faculty member is considered more as a "facilitator" and catalyst for various learning processes—not the sole possessor of wisdom.

"Real-life" projects studied by faculty-student teams include; 1) a specific case of water pollution, drawing upon chemical and biological analyses; 2) the problems of a new high rise apartment community, as an example of urban planning; 3) the availability of birth control devices and family planning services in the community which involved exploring various physiological, sociological, political and religious facets.

Francis feels that those environmental programmes which can leap disciplinary boundaries provide more latitude and responsibility to students for self-directed learning, and are more easily established in new universities or when a major shake-up takes place in an old one.

The workshop at Tours made recommendations to Member governments, both to provide environmental education per se and to institute the concept of the environment into all studies which affect man and his relation to the world in which he lives. The Centre for Educational Research and Innovation will continue to study and analyse existing and planned programmes in Member countries.

DEVELOPMENT AID AND THE POPULATION PROBLEM

A large number of developing countries have adopted policies designed to slow down demographic growth and have requested official development assistance for these activities to supplement the efforts of private organisations. The result has been an increase in the number of OECD governments providing direct bilateral aid from two in 1967 to thirteen in 1972 and an increase in the volume of their population aid from \$ 6.7 million to \$ 160 million over the same period.

Sixty five governments around the world are supporting the UN's Fund for Population Activities and the World Bank has evolved a major programme of funding in the population area.

Since such aid has become an integral part of many development assistance programmes, the problems associated with it are among those discussed by OECD's Development Assistance Committee (DAC).

In addition a programme of research and information in the population field has been set up within OECD's Development Centre. Some of the findings of this programme are presented and some of the problems discussed in the following article by Richard Hankinson of OECD's Development Centre.

This year the world's attention will be focussed on population questions, since 1974 has been declared World Population Year by the United Nations.

As the year opens there are some encouraging signs that the world population growth rate might peak in the 1970's: preliminary evidence from the 1970 census returns indicate a decline in fertility in some 20 countries, for the most part small in size, and a slight decline in some regions—particularly South East Asia, the Far East and the Caribbean.

However, this optimistic note must be kept in the correct time perspective. The rate of population growth expected for the 1970's is 2-2.1 per cent (see Charts A and B), a figure characterised by the United Nations, which made the estimate, as "higher than has ever been experienced in the history of man".

Moreover high birth rates and rapidly falling infant and child mortality have created an age structure with enormous potential for future growth. There are as many children under 15 in the Third World as there are fertile persons of age 15-44 so that even an immediate fall of fertility to replacement levels could hardly prevent the present world population of 3.7 billion from nearly doubling by the year 2000.

The Decline of Fertility

The fact that fertility is beginning to decline can be attributed in part to changes in age distribution and age at marriage but above all to an increase in fertility control. Most of the large countries of the developing world have adopted policies designed to slow population growth. By 1972, 31 developing countries accounting for 74 per cent of the total population of the Third World had such policies as well as programmes to implement them; a further 28 countries with 13 per cent of the population

provided support for action programmes without having formulated a specific policy. Only six of the developing countries with more than 10 million inhabitants had neither a programme nor a policy (1), and even in some of these a change is in the air.

A basic component of these policies is the development of national family planning programmes, and local expenditures for this purpose have been increasing in many countries of the Third World, particularly Asia. However India, with one of the world's longest running programmes, has recently cut down on its budget for family planning (from \$104 million in 1972/3 to \$75 million in 1973/74) reportedly as a result of governmental financial difficulties arising from unexpected expenditures for drought relief, wage increases for government employees and inflation.

Partly as a result of these programmes the number of people who know about and regularly practice contraception—whether with modern techniques or traditional methods—is relatively high in some areas of the developing world (see Chart C) though still far lower than in Western Europe, North America, the USSR or Eastern Europe. For the developing world as a whole, estimates of the number of people who practise contraception of some kind range from 8 per cent in East Africa to 35 per cent in China, with most areas around 11 per cent (the Middle East, North Africa and Indian Subcontinent) (2).

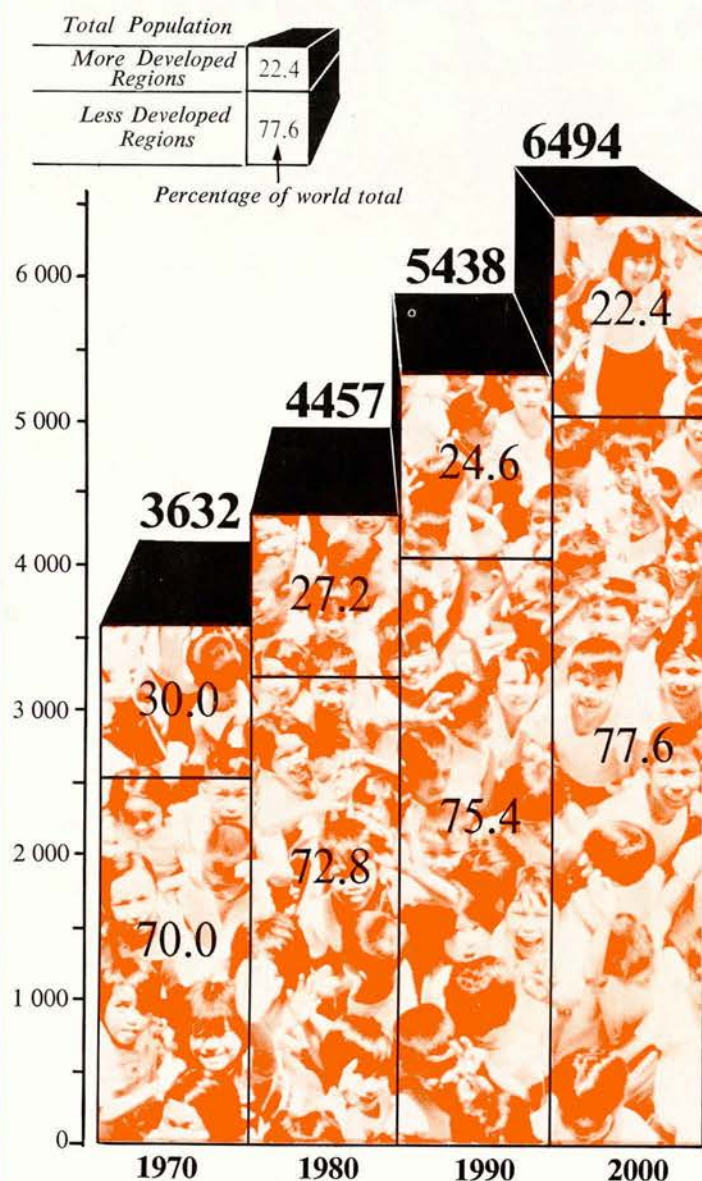
But, it is important to note, fertility control does not consist of family planning programmes alone. Far more important in

(1) Brazil, Burma, Ethiopia, Zaire, North Korea and Peru. Data in this paragraph come from "Population and Family Planning Programs: a fact book", by Dorothy Nortman, N° 2, 5th edition, September 1973. Population Council, New York.

(2) Source: Dr J. Corbett McDonald, "Unmet Needs in Family Planning", International Planned Parenthood Federation, 1973.

A. PROJECTED WORLD POPULATION GROWTH

U.N. Medium Variant (1) (in Millions)



(1) "World Population Prospects as Assessed in 1968". UN, New York, 1973.

quantitative terms is abortion, legal and illegal, as can also be seen in Chart C. The demographic impact of abortion is as great as the whole contraceptive effort combined. Although reliable figures are hard to come by, it is probable that one out of three pregnancies in the world as a whole end in abortion, and in some countries this rate is much higher. The ethical issues raised by abortion are difficult, but the facts must be faced and one of the important problems that will be discussed during Population Year is whether, given the prevalence of abortion, it should be considered part of fertility control programmes.

Development Assistance for Population Activities

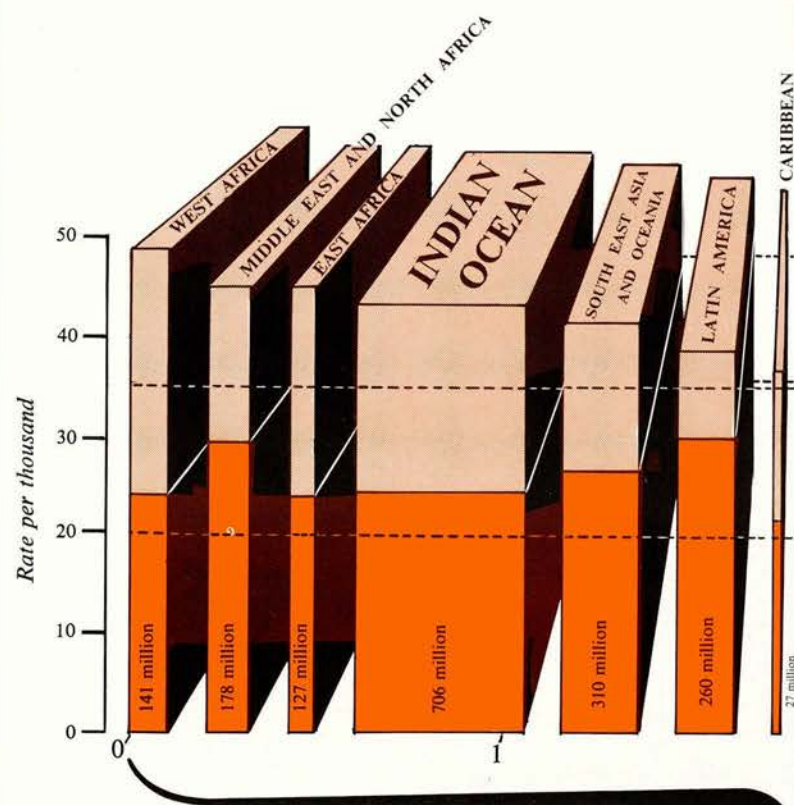
The growing demand for population assistance by the developing countries, combined with changing attitudes in donor countries, has resulted in a rapid growth in total assistance of this kind, particularly since 1968. Table 1 gives the broad outline

of the population assistance picture. It should be remembered however that despite this rapid growth, population assistance still only makes up a small percentage of aid. Data for 1972 show population assistance as 2.3 per cent of Official Development Assistance, with Norway (8.7 per cent) and Sweden (6.4 per cent) as the countries giving most emphasis to this aspect of aid. In 1969-70 the accelerating aid programmes of donor governments were largely bilateral, but there has subsequently been an increasing tendency to channel aid through multilateral agencies. The preferred channel for government multilateral aid is the United Nations Fund for Population Activities (UNFPA). In 1972, the data for UNFPA show \$46½ million in funds received and only \$15.5 million being spent on action programmes. This is the result of a problem common to many rapidly growing aid programmes, that of the "pipeline", and the UN has taken steps to improve the situation.

Table 1 illustrates another factor which is probably peculiar to population assistance—the large share of overall aid provided by private agencies such as the Population Council, Ford Foundation, Rockefeller Foundation and International Planned Parenthood Federation (IPPF). Private agencies have not only raised and disbursed substantial funds but also in recent years have been seen by donor governments as suitable agencies for chan-

B. BIRTH, DEATH AND POPULATION

The number at the bottom of each bar is the total population in millions.



1971 Population

Source: "Family Planners Take Stock". Dr. J. Corbett McDonald: New York, 1973.

1. POPULATION ASSISTANCE (in Million of dollars)

	1960-67	1968	1969	1970	1971	1972 ⁽²⁾	TOTAL
Multi-lateral	United Nations	—	4.5	8	13.5	16	54.5
	World Bank	—	—	—	8	34.5	42.5
	Other	—	—	—	5	5	10
Private Agencies	107	26.5	45	46.5	51	46	322
Govern-ments	Through Multilateral or Private Agencies ⁽¹⁾	1	11	20	23	49	179
	Bilateral	15	27	33	64	74	298
TOTALS	122	58	86	124	154	183	727

(1) These amounts are already included in above figures.

(2) The 1972 figures exclude administrative costs which amounted to a total of \$16 million.

(3) \$3 million additional went to private agencies and is included in their total.

Source: Development Assistance for Population Activities in 1971 and 1972. OECD Development Centre 1973-1974.

nelling their population assistance. In 1972 the IPPF alone received \$14½ million from eight governments.

One further trend should be noted. In recent years the World Bank (IBRD) has emerged as a major new source of funding; these funds are a net addition to population assistance and are

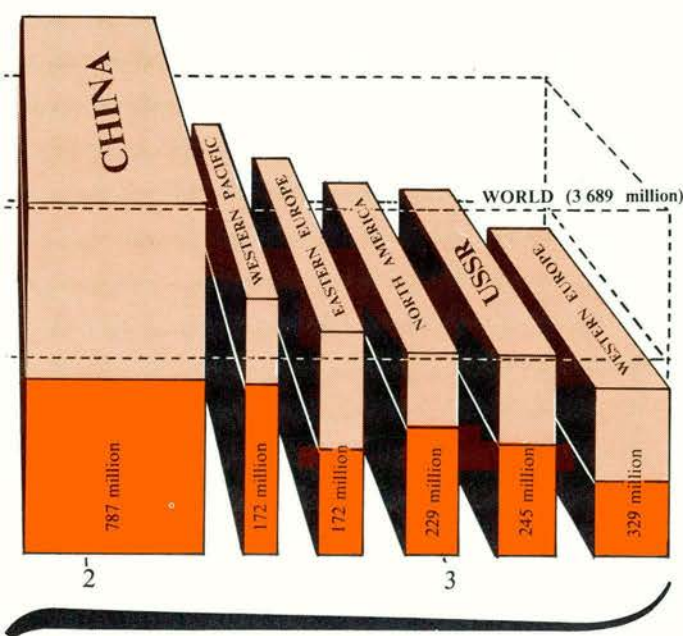
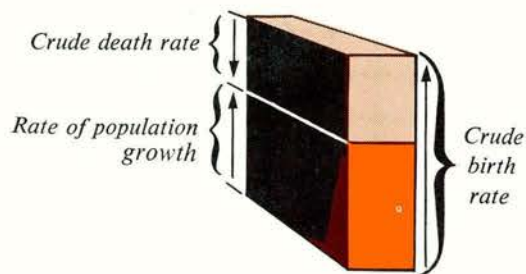
not included in government contributions in Table 1.

The Purpose of Aid

Assistance to family planning still accounts for the major part of development aid in the population field. (In 1972, \$131 million

GROWTH RATES (1969-1970 AVERAGE)

base of each column
total population



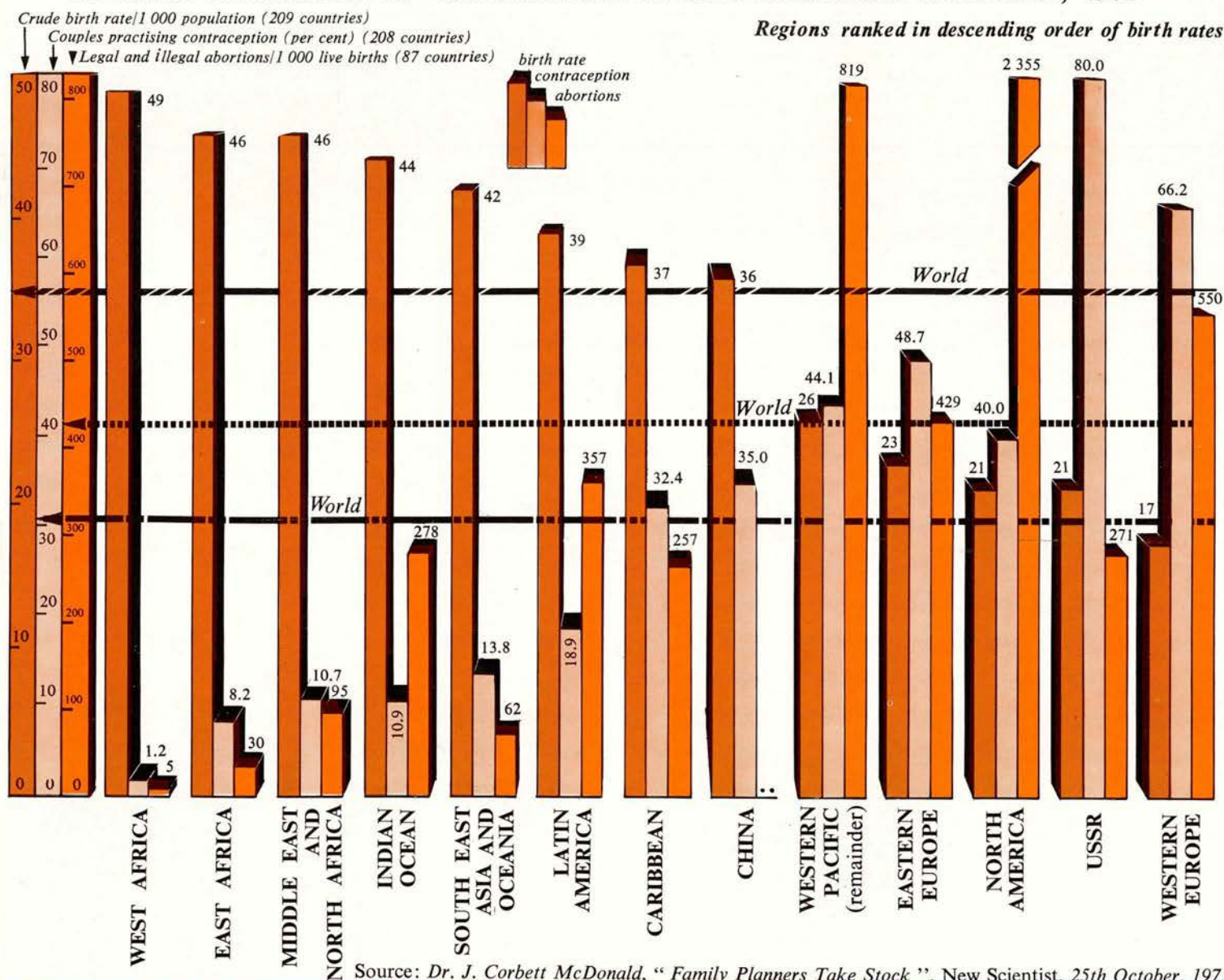
on (billions)

entist, 25th October, 1973.



Tunisian "week for the well being of the family", a campaign of posters for birth control.

C. SOME ESTIMATES OF CONTRACEPTIVE AND ABORTION PRACTICE, 1971



Source: Dr. J. Corbett McDonald, "Family Planners Take Stock", New Scientist, 25th October, 1973.

or 72 per cent of population assistance was for this purpose.) Such assistance takes the form of contraceptive and other supplies, building costs, the training of personnel, and above all the provision of general budgetary support for developing country programmes, so that personnel can be recruited and paid.

Aid totals for other population activities are also rising. Increasingly aid is being used to establish facts and figures about population trends in areas where such statistics are weak or non-existent. An African Census Programme has been undertaken, financed by the United Nations Fund for Population Activities: \$16 million will be spent for this purpose over the next three years in tropical Africa alone. Total assistance for demographic research in the Third World increased to \$17 million in 1972.

Expenditures for biomedical research are also on the rise. Originally carried out for the most part in the developed countries, such research is increasingly being done in the Third World where \$24 million were spent for this purpose in 1972.

An important task for the next few years will be to supplement family planning clinics with new kinds of programmes. One possibility would be to support the distribution of contraceptives outside of clinics. Another would be to help find new ways of raising the age at which people marry.

The Adequacy of Aid ⁽³⁾

Another of the main issues that will be examined during Population Year is the extent to which the gap between forthcoming funds and effective demand for facilities and services in the population field can or should be financed by development assistance and—a related issue—whether the fact that outside funds are available discourages contributions by the developing countries themselves. Some population experts have been struck by the fact that although China has received no aid, it has nevertheless had success in coming to grips with its population problem (though its population growth rate is still estimated to be around 2 per cent per annum).

According to one United Nations estimate, providing adequate family planning services through existing health services would cost an average 58 US cents a year per person or a total yearly cost of \$1,160 million for the next decade for some 260 million

(3) See also "The Constraints on Population Activities and the Problem of Absorptive Capacity", OECD Development Centre, 1973.

of the women of child bearing age in the developing world (4). Other estimates—by the US Agency for International Development and the Carolina Population Centre—are in the same range (45 and 60 cents respectively) but one study (5) suggests a considerably higher figure: if the estimated 10 per cent of couples in the developing world who practice effective contraception were to be increased to 50 per cent by 1990 the cost might be \$2 a year per person in 1980 falling to \$1.50 per person in 1985 or a total of \$1,200 million a year in 1980 increasing to \$2,000 million a year in 1985.

Current aid flows are about 10 per cent of this amount, and overall the funds now provided by developed and developing countries alike amount to only 30 per cent of this estimated need. Although much of the cost will be borne by the developing countries themselves, there will be a need for substantially more aid from the developed world for population activities in the short term, particularly to build, to train, and help “prime the

pump” as developing country commitments develop slowly into action programmes.

More and more the population problem is becoming recognised as a global concern rather than a problem primarily for the developing countries since there is increasing awareness of the much greater pressure on resources exerted by the population of the rich world. Discussions during 1974, culminating in the World Population Conference to be held in Bucharest in August, will therefore focus on the world population problem and what should be the role of the developed countries as well as that of the Third World in imposing constraints on population growth.

(4) United Nations Economic and Social Committee (ECOSOC): “Report of the Advisory Committee on the Application of Science and Technology to Development”.

(5) W. Draper: “A Population Program for the Developing World”(mimeo), 1973.

OECD's DEVELOPMENT CENTRE AND THE POPULATION PROBLEM

The work of OECD's Development Centre in the population field has four main facets:

● Study and Research on Population Matters

The first studies of the Centre were designed to make OECD Member countries more aware of the population factor in economic development so that they could take it into account in drawing up aid policies. Research therefore was concentrated on the connection between population and economic growth, and the link was assumed to be rather a simple one: rapid population growth hindered economic development. Since that time further analysis has shown that the links are more complex, that countries can, for example have both rapidly growing populations and very high growth rates—but at the cost of severe social problems, maldistribution of income and unemployment.

Hence research is increasingly being focussed on the social aspects of development, and studies have been carried out on such topics as:

- *the impact of different types of family planning programmes on income distribution*

- *how fertility reduction affects various socio-economic groups and the economics of the individual family.*

A great deal of the Centre's research concerns Africa whose population problems are among the least well understood and whose birth rates are among the highest. Studies have been undertaken on:

- *African employment problems*
- *the relevance of the demographic transition from high to low rates of population growth experienced by most Western countries to present-day Tropical Africa*

- *the effect of changes in fertility and mortality on socio-economic structures*
- *the impact of health services on mortality*

- *four case studies on human resource planning in Algeria, Ivory Coast, Nigeria and Tanzania*

- *population growth and the distribution of income.*

In 1974, in connection with the UN Population Year, twelve experts on contract from the International Union for the Scientific Study of Population (IUSSP) are studying the demographic impact of family planning programmes. The Centre also will do a “state of the art” report on current trends in population matters.

● A Forum for Discussion between Donors and Recipients

The Centre brings together government officials and others responsible for population programmes in the developing countries and representatives of the donor institutions—private organisations and foundations as well as governmental and multinational organisations. Those who attend do so in a personal capacity, not as official representatives, so that candid discussion can take place on such issues as constraints on family planning programmes, the effectiveness of population assistance and other sub-

jects on which studies are being carried out.

● A Centre for Information on Development Assistance in the Population Field

In close co-operation with OECD's Development Assistance Committee the Centre collects data on population assistance and is the primary world source of information on this rapidly expanding type of aid.

● Other Information and Publications

Another of the Centre's functions is to act as a clearing house for information about developments in the population field. This is done by publishing the results of research studies, conference proceedings, working papers and information guides as well as by making and distributing worldwide abstracts of relevant studies.

The Centre also acts as a resource base for the OECD as a whole in population matters, particularly for the work that the DAC has undertaken in this area, and will do in 1974.

* * *

Because of the growing recognition that population problems are basic to many others—unemployment, poverty, urban overcrowding and health for example—the population research programme has been gradually integrated into the general research programme of the Development Centre.

SHOULD FIXED-INTEREST SECURITIES BE TIED TO PRICES?

Workers in many OECD countries are protected against inflation by “indexing” their wages to a consumer price index or some other measure of the cost of living. Pensions too are often linked to prices. But one form of income which is not directly geared to the cost of living in any OECD country is income from interest payments; more important, the purchasing power, or real value of financial assets is not protected against inflation. With the rapid and persistent rise in prices which has become a fact of life in many countries, there has been a revival of interest in schemes which would introduce some form of indexation of financial assets and of the income they yield. OECD’s Committee on Financial Markets has examined the pros and cons of such schemes (1); the results have just been published and are summarised in the following article.

Two main arguments can be made for the indexation of interest bearing assets, first that it would provide more equitable treatment for those who hold such assets; and second that it would encourage people to save rather than to spend during periods of inflation and hence help to halt the inflationary spiral.

Social Justice

Whether indexation would lead to greater social equity, OECD’s study concludes, depends on who holds the assets in question. Little statistical evidence is available on this point, but what there is indicates that indexation of bonds would be an “imperfect instrument” with which to protect low income families against erosion of their savings since their assets are likely to be in more liquid form than bonds—savings deposits for example and insurance policies. To protect low income families these other types of savings would have to be indexed as well.

Inflation and Savings

But widespread indexation presents inflationary dangers. If inflation is rapid, indexation could push the costs of borrowing up and be reflected in the price of goods (2). This seems to have been the case in Finland where the government, motivated by considerations of social justice, indexed both liquid assets and securities after World War II. But when the Finnish currency was devalued in 1967 it was generally agreed that the increase in costs caused by the devaluation would be magnified by the network of indexation into an inflationary spiral that would cancel out the desired effects of the devaluation on the balance of payments. Thus indexation was abolished in 1968. “The Finnish experience suggests that the introduction of indexation on a wide scale complicates the task of governments in fighting inflation” notes OECD’s study.

OECD’s study finds no empirical evidence to support the claim that indexation would lead people to *increase* their *overall* savings. It is more likely to bring about a shift in the composition of savings to indexed forms. This might lead to a better allocation

of savings between various types of investment: during an inflation savers tend to move out of fixed interest financial assets into what they feel to be more inflation-proof investments such as real estate, gold, foreign exchange and also shares. Indexation could discourage this flight and thus minimise inflationary distortions in investment patterns as between financial and real assets and between different forms of financial assets.

Other Effects

But indexation could make an increase in interest rates less effective in combating inflation and hence require more stringent monetary policy to achieve a given degree of restraint.

Foreign investment, which would be attracted in any case by higher interest rates during a period of inflation, might increase even more if investors anticipated a continuation of inflation since, with indexation, the value of their capital and interest income could be expected to increase as prices rose. This too could complicate the task of monetary policy.

Linking bonds to the price index might however—in special circumstances—improve the government’s ability to borrow which can be seriously impaired by a rapid and persistent inflation, especially if the indexation is part of an overall anti-inflationary programme.

On the other hand indexation might decrease the efficiency of capital markets by making them less “transparent” and less flexible.

A limited use of indexation—for certain types of savings such as savings bonds ordinarily held by low-income investors—with strict limits on holdings to prevent more wealthy persons from having excessive holdings could result in more equitable treatment for an important social group without these disadvantages of widespread indexation.

Whatever course is chosen by individual governments (OECD’s study makes no overall recommendations as circumstances differ from country to country) it is essential that the public not be led to think that indexation represents a weakening of government’s determination to bring inflation under control.

(1) The main focus of the study is bonds, both to limit its scope and because bonds are long-term fixed interest investments which make it difficult for investors to adjust to changes in interest rates during periods of rapid and persistent inflation. The only form of indexation dealt with is one which uses some overall index of prices, usually the consumer price index. Links to production or profit levels are excluded from the study as are exchange guarantees and gold clauses.

(2) Indexed bonds would normally have a much lower “nominal”

rate of interest than other types of financial assets. However if prices continue to rise, this increase will be reflected in the effective rate and thus both the yield to the investor and the cost to the borrower will rise correspondingly. Thus if the inflation is strong and persistent, the cost of borrowing might be higher than in the case of non-indexed bonds. For this reason the corporate sector is only likely to index its bonds if forced to, for example, by the need to compete for funds with the government sector.

TWO OECD SURVEYS ON MANPOWER

LATEST DEMOGRAPHIC TRENDS AND PROJECTIONS FOR 1985

The OECD Manpower and Social Affairs Committee recently published the results of its enquiry on demographic trends in Member countries until 1985. This is the fourth study of its kind carried out by the Committee; like its predecessors, it will facilitate international comparisons of the trends observed in the different countries. It includes an analysis by individual countries, and a general analysis which deals with the total population and the active population, respectively (1). One of the tables included in this study is reproduced below.

Total Population

In 1985, the overall population of the OECD countries will be 17 per cent higher than in 1970. This growth will stem primarily from an increase in the number of adults, since the population under 15 will expand by only 12 per cent during this period. The different countries can be classified in three groups on the basis of the individual characteristics of their population trends.

The first group includes countries that will experience substantial expansion in total population between 1970 and 1985—Canada (an annual average of 1.7 per cent), Japan and the Netherlands (1 per cent)—and will in 1985 have a relatively large proportion of young people, a fairly low percentage of older people and a population of working age amounting to 65 per cent or more of the total.

The second group covers countries that will have a 1 per cent average annual increase in total population (except the United Kingdom: 0.5 per cent) between 1970 and 1985, and will in 1985 have a substantial proportion of young people

(between 25 and 30 per cent), a relatively large proportion of older people (12 to 14 per cent, except for the United States: 10 per cent) and a low proportion of people from 15 to 64 years of age: 62 per cent for France, the United Kingdom and the United States and 59 per cent for Ireland and Norway.

The third group comprises countries that will have a large proportion of older people in 1985, a fairly low proportion of young people and a population of working

According to the forecasts for Sweden, the participation of women in the labour force will increase during the present decade. Contrary to widespread belief, this is not the case for all countries. Below: Swedish women workers in a Saab-Scania motor factory.



age of about 65 per cent of the total. They are all countries which will show a very low increase or even a decrease in total population over the period under consideration: Belgium, Denmark, Germany, Italy, Portugal, Sweden and Switzerland.

Finland has a highly individual profile—18 per cent young people, 70 per cent of the population of working age and 12 per cent older people in 1985—and can no more be classified in one of the preceding groups than Turkey which, on the (highly improbable) assumption that emigration stops, would have 39 per cent young people, 57 per cent of the population of working age and only 4 per cent persons aged 65 and over.

In short, the two major characteristics of the total population of OECD countries in 1985 will be a low proportion of young people and an appreciably greater number of older people in relation to the figures for 1970.

Active Population

The interplay of factors in active population trends is conducive to structural changes. Accordingly, contrary to an accepted view, the rate of female economic activity is by no means increasing in all countries. It has recently been declining in Germany, Italy, Japan and the Netherlands. On the basis of the assumptions adopted, the decline will continue in these countries during the projection period and will be particularly

(1) Except in the case of France, where there was a census in 1968, the results of the population censuses conducted by many countries in 1970 or 1971 had not yet been analysed at the time the study was carried out. It is accordingly based on adjusted data obtained from earlier censuses.

marked in Japan and, to a lesser extent, the Netherlands. Nevertheless, in a large number of countries the assumptions adopted for the projections entail an *increase in the proportion of women in the active population*. This increase is expected to be particularly substantial in Belgium, Denmark, France, Sweden and the United Kingdom.

In almost all cases, the assumptions concerning trends in rates of activity over the entire projection period entail a *decline in the proportion of young people and older people* in the overall number of workers. The drop in the proportion of young people over the 15 years of the projection period ranges from 48 per cent in Finland to 6 per cent in Italy and the United Kingdom. Germany is the one exception where, conversely, the percentage of young people will increase by 17 per cent.

The dependency rate of the economically inactive population i.e., the ratio of non-active to active persons, has not recently increased except in Finland, Germany, Italy, the Netherlands and the United Kingdom, while it has even dropped appreciably in Japan and the United States. However, the assumptions adopted for the projections entail an increase in the dependency rate. This will be particularly substantial in Japan and the Netherlands where, over the whole projection period, there will be increases of 11 and 17 per cent respectively.

The largest body of non-active persons dependent on the active population consists of young people *under 15 years of age*. It generally accounts for about 40 to 45 per cent of the overall number of non-active people but reaches almost 50 per cent in countries such as the United States and Japan. Non-active persons of *65 years of age and over* represent a small percentage of the total non-active population, accounting for 10 per cent in 1970 in countries like Japan and, generally, about 15 to 20 per cent. However, dependency as a result of ageing populations and generally earlier retirement ages is increasing very steadily. In the recent past, dependency attributable to *non-active women* has decreased appreciably in Belgium, Denmark, France, Sweden and the United States, while everywhere else it has increased or remained at about the same level. In the same countries, and likewise in the United Kingdom, it is likely to drop still further during the projection period. On the other hand, the female dependency rate will tend to rise notably in Finland, Japan and the Netherlands.

AVERAGE ANNUAL RATE OF VARIATION OF THE TOTAL POPULATION AND THE ACTIVE POPULATION IN 18 OECD COUNTRIES BETWEEN 1965 AND 1985

Country	Population	1965-1970	1970-1975	1975-1980	1980-1985	1970-1985
Canada	Total OM	—	+ 1.1	+ 1.2	—	—
	WM	+ 1.8	+ 1.6	+ 1.7	—	—
United States ..	Total OM	—	+ 0.9	+ 1.1	+ 1.2	+ 1.1
	WM	+ 1.1	+ 1.1	+ 1.3	+ 1.4	+ 1.3
	Active OM	—	+ 1.4	+ 1.5	+ 1.1	+ 1.3
	WM	+ 2.2	+ 1.6	+ 1.7	+ 1.2	+ 1.5
Japan	Total OM	—	+ 1.2	+ 1.1	+ 0.8	+ 1.0
	WM	+ 1.1	+ 1.2	+ 1.1	+ 0.8	+ 1.0
	Active OM	—	+ 0.7	+ 0.4	+ 0.3	+ 0.5
	WM	+ 1.9	+ 0.7	+ 0.4	+ 0.3	+ 0.5
Belgium	Total OM	—	+ 0.2	+ 0.1	+ 0.1	+ 0.1
	WM	+ 0.5	+ 0.3	+ 0.1	+ 0.1	+ 0.2
	Active OM	—	+ 0.5	+ 0.6	+ 0.5	+ 0.5
	WM	+ 0.4	+ 0.6	+ 0.6	+ 0.5	+ 0.6
Denmark	Total OM	—	+ 0.4	+ 0.4	+ 0.3	+ 0.4
	WM	+ 0.7	+ 0.4	+ 0.4	+ 0.3	+ 0.4
	Active OM	—	+ 0.7	+ 0.4	+ 0.6	+ 0.6
	WM	+ 0.8	+ 0.7	+ 0.4	+ 0.6	+ 0.6
Finland	Total OM	—	+ 0.3	+ 0.2	+ 0.1	+ 0.2
	WM	+ 0.3	— 0.2	— 0.1	— 0.2	— 0.2
	Active OM	—	+ 0.3	+ 0.1	—	+ 0.1
	WM	— 0.1	— 0.3	— 0.2	— 0.2	— 0.3
France	Total OM	—	+ 0.7	+ 0.8	+ 0.8	+ 0.8
	WM	+ 0.8	+ 0.9	+ 1.1	+ 1.1	+ 1.0
	Active OM	—	+ 0.6	+ 0.9	+ 0.9	+ 0.8
	WM	+ 0.9	+ 0.9	+ 1.2	+ 1.3	+ 1.1
Germany	Total OM	—	+ 0.4	+ 0.3	+ 0.4	+ 0.4
	WM	+ 0.8	+ 0.5	+ 0.4	+ 0.5	+ 0.4
	Active OM	—	— 0.1	+ 0.4	+ 0.5	+ 0.3
	WM	— 0.1	+ 0.1	+ 0.5	+ 0.6	+ 0.4
Ireland	Total OM	—	+ 1.2	+ 1.3	+ 1.4	+ 1.3
	WM	+ 0.6	+ 0.7	+ 0.9	+ 1.0	+ 0.9
Italy	Total OM	—	+ 0.8	+ 0.6	+ 0.5	+ 0.6
	WM	+ 0.7	+ 0.6	+ 0.5	+ 0.5	+ 0.5
	Active OM	—	+ 0.2	+ 0.6	+ 0.5	+ 0.6
	WM	— 0.8	— 0.1	+ 0.5	+ 0.6	+ 0.3
Luxembourg ...	Total WM	—	+ 0.7	—	—	—
	Active OM	—	+ 0.3	—	—	—
	WM	+ 0.4	+ 0.4	—	—	—
Netherlands	Total OM	—	+ 1.1	+ 1.1	+ 1.0	+ 1.0
	Active OM	—	+ 0.4	+ 0.5	+ 0.8	+ 0.6
	WM	+ 1.0	+ 0.7	—	—	—
Norway	Total OM	—	+ 0.9	+ 0.9	+ 0.9	+ 0.9
Portugal	Total OM	—	+ 0.9	+ 0.8	—	—
	WM	—	— 0.5	— 0.8	—	—
Sweden	Total OM	—	+ 0.4	+ 0.3	+ 0.1	+ 0.3
	WM	+ 0.8	+ 0.6	+ 0.5	+ 0.5	+ 0.5
	Active OM	—	+ 0.1	+ 0.1	+ 0.1	+ 0.1
	WM	+ 0.8	+ 0.1	+ 0.5	+ 0.5	+ 0.5
Switzerland	Total OM	—	+ 0.3	+ 0.3	+ 0.3	+ 0.3
	WM	+ 0.7	+ 0.4	+ 0.4	+ 0.4	+ 0.4
	Active OM	—	+ 0.3	+ 0.3	+ 0.2	+ 0.3
	WM	+ 0.4	+ 0.3	+ 0.4	+ 0.3	+ 0.3
Turkey	Total OM	—	+ 2.6	+ 2.5	+ 2.6	+ 2.6
United Kingdom	Total WM	+ 0.5	+ 0.5	+ 0.5	+ 0.5	+ 0.5
	Active WM	— 0.3	+ 0.1	+ 0.6	+ 0.7	+ 0.5

OM = without migration. WM = with migration.

UP-TO-DATE INFORMATION ON MIGRATION THROUGH "SOPEMI"

A continuous reporting system on migration (*SOPEMI* from its French title "*Système d'observation permanente des migrations*") was set up in 1973 by OECD's Manpower and Social Affairs Committee at the instigation of its Working Party on Migration. The purpose of this new system is to provide the authorities concerned with speedy information on the intra-European movement of workers. On 20 January a meeting was held during which the possible impact of the oil crisis on worker migration was discussed by the correspondents of SOPEMI. These correspondents have been selected on a personal basis in ten Member countries (1) and Yugoslavia. They are to send the Secretariat information which will then be collated into a general report circulated by OECD. Parallel to this work research is carried out by OECD on those aspects of migration and migratory policy which lend themselves to a confrontation between the countries concerned (2).

The widespread employment of foreign manpower has become a structural feature of the Western European economies during the last ten years; it will remain an essential socio-economic fact for the foreseeable future. In spite of recessions, which have sometimes been characterised by a short period of "rejection" of foreign labour (Sweden 1972), and in spite of measures to protect national labour markets, the "stock" of immigrant manpower has tended to rise in all countries.

Growth of Immigrant Labour

The persistence of this phenomenon can be seen in terms of individual workers as well as for the economy as a whole: the information obtained in both immigration and emigration countries shows how rarely workers return at the time they planned to, after a long stay undertaken for financial reasons. Apart from the very rapid turn round of unsuccessful migrants (workers who leave a country a few months after arrival), it is increasingly clear that the rotation of migrants is becoming very slow as time goes by.

This structural feature of the employment of foreign manpower is one of the findings of the survey on demographic trends carried out at the request of the Manpower and Social Affairs Committee (3). The same conclusion is reached in the first report of the continuous reporting system on migration (SOPEMI) set up

this year by the Committee. This report sums up recent developments in the movement of workers in Europe and analyses short-term trends. The information from the major emigration or immigration countries, which has been put together for the first time, is more qualitative than quantitative. Subsequent reports will aim at more detailed description and will insofar as possible strive to provide as much information as possible from migration statistics which are at present notably lacking in comparability. But the confrontation of observations has already revealed the major trends in intra-European migratory flows. For instance, the SOPEMI report notes that there is no longer any simple correlation between economic growth in the industrial countries and the demand for foreign manpower. The importance of such factors as the mobilisation of domestic reserves or the adoption of a deliberately restrictive policy for socio-political reasons shows that manpower flows are determined by a whole complex of interwoven elements.

Diminution of Migratory Flows

The report says that the size of these flows is tending now to diminish. The figures from both the emigration and immigration countries show that in 1972 the total number of workers moving declined for the third consecutive year. The explanation of this trend emerges in part from the information provided on

migration policies in the two groups of countries; these policies are tending to become—and this was very clear in 1972—increasingly restrictive. Germany, France, Sweden and Switzerland have introduced or are introducing political or social measures which have a limiting effect. At the same time, Spain, Greece and Yugoslavia have stated that they wish to stop the drain of emigrants and as far as possible to control the flow of departures.

Germany received 479,797 foreign workers in 1972; 332,250 left that country between October 1971 and September 1972, which means a net migratory balance of about 150,000 people. But the government's new policy, the expected natural increase in active population and possibly the mobilisation of certain domestic reserves give reason to believe that immigration will be slowed down, and in the short and medium-term this could reduce the present migratory balance by roughly half.

In France, 1970 saw the largest number of permanent foreign workers entering the country since the War. Since that date, immigration has fallen off rapidly though it is still at a high level. The 1972 figures confirm and accentuate the reversal of trends observed in 1971. While the decline in immigration in 1971 took place in the setting of a slower economic growth rate, the strong recovery in expansion observed from the end of 1972 onwards and the marked increase in the number of wage-earners have not prevented immigration from declining still faster.

Immigration into Sweden appears to be at the end of a cycle marked by a rapid increase from 1967 to 1970 and a sharp fall from 1970 to 1972, in which year the number of immigrants was less than the first low point (1967). According to the Swedish report to SOPEMI, the migratory deficit of 1972 (6,691 workers) might have been offset in 1973 and fu-

(1) Finland, France, Germany, Greece, Italy, Portugal, Spain, Sweden, Switzerland and Turkey.

(2) See the OECD Observer, N° 47, August 1970, and N° 58, June 1972.

(3) See the preceding article, page 37.

ENTRY OF FOREIGN WORKERS INTO FRANCE AND SWITZERLAND

<i>FRANCE</i>	1970	1971	1972
Recorded by the Office national d'immigration	165,459	127,720	90,015
From EEC	8,784	8,284	8,059
From Algeria (quota)	38,542	41,373	21,575
TOTAL	212,785	177,377	119,649

<i>SWITZERLAND</i>	1970	1971	1972
Annual	66,939	48,303	52,120
Seasonal	200,338	227,745	244,103
Frontier	89,700	110,560	111,281
TOTAL	356,977	386,608	407,504

ture years might see the return to a positive migratory balance.

Migration to Switzerland has been very strongly influenced by the introduction of a new system of limitation in March 1970. Since that date, the number of immigrant workers with annual permits has dropped considerably, falling from 101,790 in 1969 to 52,120 in 1972.

But migratory pressure is still strong in Switzerland. In 1972, more than 9,000 workers wrongly classed as seasonal, who had worked for at least 45 months in that country during five consecutive years, were given annual residence permits; there was also a marked increase in the number of foreigners employed in hospitals, a sector not subject to the limitation measures.

Continued Migratory Pressures

The strength of migratory pressure is one of the general trends observed by SOPEMI. In immigration countries, the number of jobs offered by employers remains high. In emigration countries, there are still many applicants for departure on the official waiting lists (nearly a million people under 35 years of age in Turkey). The total number of jobs offered (at home and abroad) is tending to rise everywhere more quickly than the demand for employment, but this movement is not sufficiently rapid to indicate that industrial Europe's "reserves" will be exhausted in the medium term, quantitatively speaking at least.

In the emigration countries themselves, pockets of labour shortage have made their appearance. In Spain, Greece and Italy, the demand for foreign manpower, generally of North African or East African origin, is no longer purely accidental; certain jobs and certain sites which are less well paid than in other countries are beginning to be left to immigrants, though still only locally and in very limited sectors.

Structural Trend

The report notes that immigration into each country is dominated by one or two nationalities, differing from one country to another (though Italians predominate in both Germany and Switzerland).

The observations collected by SOPEMI show that migration is still a highly selective phenomenon, although some slight changes are discernible in the geographical location and nature of jobs.

Geographically, concentration in industrial areas remains the rule, but a definite trend towards dispersal in the receiving countries has been observed.

As regards occupations, a twofold trend seems to be discernible, although not a very clear one. In the countries of departure, emigration affects proportionally fewer farmers, non-active and unemployed persons and more industrial workers. In the countries of arrival, the number of foreigners is rising in the tertiary sector (services at the lower end of the scale), and this is tending to reduce the relative importance of foreigners in the processing and building industries, though their role in these industries is still an essential one.

STRUCTURE OF IMMIGRATION IN 1972, BY NATIONALITY

<i>Country of employment</i>	<i>France</i>		<i>Germany</i>		<i>Sweden</i>		<i>Switzerland</i>	
<i>Country of origin</i>	<i>Number</i>	<i>%</i>	<i>Number</i>	<i>%</i>	<i>Number</i>	<i>%</i>	<i>Number</i>	<i>%</i>
Turkey	8,213	6.8	96,210	20.0	582	2.2	2,586	0.9
Greece	224	—	24,666	5.1	1,395	5.4	679	0.2
Yugoslavia	7,317	6.1	75,501	15.8	1,650	6.5	20,687	7.0
Italy	5,193	4.3	154,184	32.2	256	1.0	142,729	48.2
Spain	9,925	8.3	28,657	5.9	240	0.9	94,686	32.0
Portugal	30,475	25.5	16,476	3.4	—	—	5,031	1.7
Scandinavian countries	—	—	3,477	0.7	13,597	52.9	1,973	0.7
EEC except Italy ..	2,866	2.4	23,016	4.8	1,096	4.2	15,442	5.2
North Africa	48,793	40.8	(6,000)	1.2	—	—	424	0.1
Other	6,643	5.8	51,610	10.9	6,892	26.9	11,986	4.0
TOTAL	119,649	100	479,797	100	25,708	100	296,223	100

AT OECD

OECD's Energy Committee

OECD's Energy Committee met on 14th January to review the energy saving measures recently taken by Member governments and the overall supply and demand situation for the various energy sources in each country. OECD's special energy consultant Prof. Hans K. Schneider reported on progress being made in an OECD study of longer term energy policies—the prospects for more rational energy use, for developing alternative sources and for bringing advanced technology into play. An interim report is to be made to OECD's next Council meeting at Ministerial level.

Because of the complex ramifications of the energy problem, much of the Energy Committee's current work—on both short and longer term problems—is being undertaken in collaboration with other committees. A discussion of energy stockpiling by industrial consumers, for example, is being carried out jointly with the Industry Committee, as is work on the rational use of energy by industry; the role of coal is being reassessed jointly with the Committee for Scientific and Technological Policy, and that of natural gas with the Oil Committee; air pollution from

fuel combustion is being studied with the Environment Committee and the role

of electricity in solving energy problems with the Nuclear Energy Agency.



Left to right: Alain Bilot, OECD Secretariat, Julio Calleja, Chairman of OECD's Energy Committee, Kristian Laading, Head of OECD Energy Division, Rinieri Paulucci di Calboli, OECD Assistant Secretary General, Prof. Hans Schneider, OECD High-level Consultant on Energy, Leslie Boxer, OECD's Nuclear Energy Agency, Head of Central Unit for Long-term Energy Assessment.



Chairman of OECD's Energy Committee: Julio Calleja, Chairman of the Spanish Energy Commission.



Vice-Chairman of the Committee, Bernard Schnell, Engineer General of Mines, General Energy Delegation, France (right) and Daniel Blain, Head of Division, French Ministry for Economy and Finance (left).



Vice-Chairman of the Committee, Sven Lalander, Vice-President, Swedish State Power Board (left) and Rolf Gradin, Head of Energy Policy Division, Swedish Ministry of Industry.

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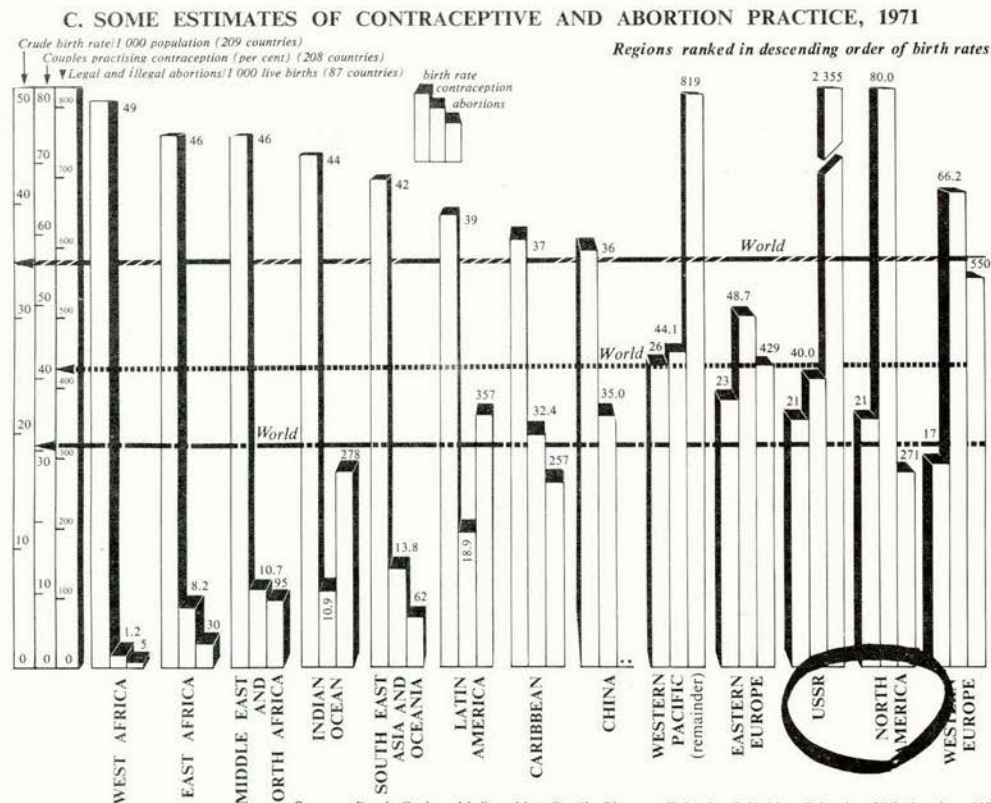
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CORRIGENDUM

In the chart on page 34 North America and the USSR should be reversed as shown below.



Source: Dr. J. Corbett McDonald, "Family Planners Take Stock", New Scientist, 25th October, 1973.