Update on the Nutrition Situation – Recent trends in nutrition in 33 countries

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UNITED NATIONS **NATIONS UNIES**

ADMINISTRATIVE COMMITTEE ON COORDINATION – SUBCOMMITTEE ON NUTRITION

A report compiles from information available to the ACC/SCN

Jan/Feb 1989

This report, which updates and extends information published in the ACC/SCN's "First Report on the World Nutrition Situation" (November, 1987), is based on information made available to the ACC/SCN by governmental and international agencies. It was prepared as a contribution to the Inter–Agency Food and Nutrition Surveillance (IFNS) Programme. Funding provided by the Swiss and Dutch governments, through the IFNS, and by SCN member UN agencies through SCN, is gratefully acknowledged. The IFNS Programme is implemented by FAO, UNICEF, and WHO.

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UNITED NATIONS ADMINISTRATIVE COMMITTEE ON COORDINATION – SUB–COMMITTEE ON NUTRITION (ACC/SCN)

The ACC/SCN is the focal point for harmonizing the policies and activities in nutrition of the United Nations system. The Administrative Committee on Coordination (ACC), which is comprised of the heads of the UN agencies, recommended the establishment of the Sub–Committee on nutrition in 1977, following the World Food Conference (with particular reference to Resolution V on food and nutrition). This was approved by the Economic and Social Council of the UN (ECOSOC). The role of the SCN is to serve as a coordinating mechanism, for exchange of information and technical guidance, and to act dynamically to help the UN respond to nutritional problems.

The UN members of the SCN are: FAO, IAEA, IBRD, IFAD, ILO, UN, UNDP, UNEP, UNESCO, UNFPA, UNHCR, UNICEF, UNRISD, UNU, WFC, WFP and WHO. From the outset, representatives of bilateral donor agencies have participated actively in SCN activities. The SCN is assisted by the Advisory Group on Nutrition (AGN), with around eight experienced individuals drawn from relevant disciplines and with wide geographical representation. The Secretariat is hosted by WHO in Geneva.

The SCN undertakes a range of activities to meet its mandate. Annual meetings have representation from the concerned UN agencies, from some 10 to 20 donor agencies, the AGN, as well as invitees on specific topics; these meetings begin with symposia on topics of current importance for policy. The SCN brings certain such matters to the attention of the ACC. The SCN sponsors working groups on inter–sectoral and sector–specific topics. Ten–year programmes to address two major deficiencies, vitamin A and iodine, have been launched.

The SCN compiles and disseminates information on nutrition, reflecting the shared views of the agencies concerned. Regular reports on the world nutrition situation are being issued. State–of–the–Art papers are produced to summarize current knowledge on selected topics. Research priorities for solving nutrition problems are proposed in consultation with agencies and researchers in the field. As decided by the Sub–Committee, initiatives are taken to promote coordinated activities – inter–agency programmes, meetings, publications – aimed at reducing malnutrition, primarily in developing countries.

ACKNOWLEDGEMENTS

The compilation of this report involved a large number of people, from the UN agencies, from NGO's, as consultants to the ACC/SCN, and those commissioned in–country to prepare and collate national data.

Contributions to the research, compilation and analysis of data, and text preparation, were made by Dr. M. Immink, Dr. M. Lotfi, Dr. M. O'Regan, Ms. R. Sarnoff, and Ms. K. Test. Mme. M–H. Phesans helped with data entry.

Data were provided by many institutions in the different countries, as given in Appendix C. Most useful information was compiled and provided by Catholic Relief Services, FEWS (Tulane University), ILO, and INCAP. PAHO kindly provided both compilation and review of data from Latin America and the Caribbean. Basic data were provided by FAO, UNICEF, WHO, and the World Bank. Mr. J. Gorstein and Dr. R. Miller (WHO) provided important specific data.

We gratefully acknowledge the help of all those who have contributed.

Comments on drafts of this report from headquarters and field staff of FAO, UNICEF, and WHO were much appreciated. The Advisory Group on Nutrition of the ACC/SCN provided important guidance throughout preparation of the report.

A. W. Kelly
J. B. Mason

ACC/SCN

14 December 1988

FOREWORD

The ACC/SCN was assigned responsibility, from its inception, for periodically reporting on trends in the world nutrition situation. A review of information available at global and regional level was published in November 1987, as the "First Report on the World Nutrition Situation" (FRWNS). This first report summarized trends over the last twenty–five years, with an assessment of prevalences and numbers of people with inadequate food consumption, and of underweight children. The methods involved interpolation from existing data, aggregated to the level of groups of countries; selected national–level data readily available was used illustratively. The emphasis was on long–term, underlying trends, at regional level.

The present "update" report concentrates on information on recent trends – monthly or annual, 1980 to 1987 – at national and sub–national level. This depends, in the first instance, on compiling the data that have been collected recently in developing countries. Much of the work has involved identifying the existence of suitable nutritional data. These data, from more than 30 countries, have been used to judge likely recent trends in nutrition, which are presented in a reasonably comparable format.

Effects on nutrition of economic recession and structural adjustment became of major concern in the early 1980's. At the SCN session in 1986 a symposium was held on this subject, noting that "improving trends in nutrition may be slowed or even reversed". UNICEF's "Adjustment with a Human Face"[1] drew attention to ten country situations in which deterioration was feared. The FRWNS highlighted deterioration in nutrition in the African region, and stagnation in Latin America. Economic stress and drought (in Africa) were considered, at regional level, to be having measurable effects on nutrition.

[1] Cornia, G.A., Jolly, R., Stewart, F., 1988. "Adjustment with a Human Face, Volume 2 – Ten Country Case Studies"; Oxford University Press.

One important outcome of these concerns was the initiation of an inter–agency (FAO, WHO, UNICEF) programme intended to strengthen food and nutritional surveillance in a wide range of developing countries. This resulted from the proposal of an ACC/SCN working group, which was approved by the SCN in March 1987. The proposal for an inter–agency programme was endorsed by the UNICEF Executive Board in April 1987, so that UNICEF assumed responsibility for raising funds for the inter– agency programme. Initial funding was subsequently provided by the Swiss and Dutch governments. An early objective of this inter–agency programme was to provide rapidly a report on recent trends – updating the ACC/SCN's First Report on the World Nutrition Situation. The ACC/SCN, which has acted as co–ordinator for launching the Inter–agency Food and Nutritional Surveillance (IFNS) programme, agreed to compile this report.

This "Update" report therefore responds both to the need for country–specific, up–to–date information to supplement the First Report, and to the first objective of the inter–agency programme, which was "to produce and analyze existing information on trends in a limited number of specified indicators of food and nutrition at national and sub–national levels".

A substantial funding contribution from the Swiss and Dutch governments, through the IFNS programme, to the production of this report is gratefully acknowledged. Additional funding has been available from SCN funds, provided by SCN member UN agencies.

The ACC/SCN's reports on trends in nutrition fit in with other work by the SCN and its member agencies. Resources available for tackling nutrition problems are being assessed by the SCN, which can then be compared with the extent and distribution of need. Policies in relation to nutrition are regularly reviewed in different sectors – in agriculture, education, and health, for example, and more recently in the context of structural adjustment. Ways of better orienting major policies to benefit food intake, health and nutrition are crucial for long–term solutions to nutrition problems. Further, specific inter– agency programmes are being promoted to address nutrient deficiencies: for vitamin A and iodine deficiencies, to date.

The eventual aim is to see the trends in malnutrition – numbers of people affected as well as prevalences – turn downwards. This would show a dual achievement. First, fundamental human problems – poverty, hunger, and disease – would be coming under control. Second, malnutrition as a problem in its own right, linked as it is to child mortality and constrained development, would be receding. The information in this report will be useful if it contributes to carrying out policies and programmes that advance this cause.

A. Horwitz
Chairman, ACC/SCN

1. INTRODUCTION

Long–term trends in nutrition in the developing countries were generally towards improvement, if slowly, in the two decades up to around 1980. These trends were described at regional level in the ACC/SCN's "First Report on the World Nutrition Situation"[1]. In that report, we stated as follows: " In most parts of the world, nutrition has improved over the last 25 years. Infant and child mortality rates, which summarize many factors, reflect this. ... The estimates of child nutritional status demonstrate that improvements of the 1970's ceased, on average, in the 1980's. Economic stress, as well as severe drought, have contributed to the overall picture of deterioration in Africa, and no significant improvement in South America, the latter contrasting with previous progress. However, proportions of the population "undernourished" are estimated to have fallen in South and South East Asia, Central America and the Near East."

[1] ACC/SCN, 1987. "First Report on the World Nutrition Situation"; ACC/SCN, c/o WHO, Geneva.

Economic recession and structural adjustment, made worse by drought in Africa, were thus thought to have contributed to increasing malnutrition in many countries in the early 1980's (ACC/SCN, 1986)[2]. Case–studies from ten countries compiled by UNICEF (1988)[3] demonstrated this. But a need was felt, first, to update and extend the results given in the "First Report" to country level, for a substantial number of countries – both those with and without economic crises. Second, factors influencing changes in nutrition, particularly with reference to economic adjustment, should be included. The present "Update" report therefore gives more

detail, at country level, than could be compiled for the first report, and includes as recent data as could be obtained – usually including 1987 and sometimes into 1988.

[2] ACC/SCN, 1986. "Report of the Twelfth Session of the ACC Sub–Committee on Nutrition and its Advisory Group on Nutrition"; ACC/1986/PG10, Tokyo, 7–11 April, 1986. ACC/SCN, c/o WHO, Geneva.

[3] Cornia, G.A., Jolly, R., Stewart, F., 1988. "Adjustment with a Human Face, Volume 2 – Ten Country Case Studies"; UNICEF, New York.

Timeliness requirements of the information to be included, and limited resources, have determined to a large degree the nature of the report. The trade–offs between how sure one can be of the trends, how much detail to cover, the need to put out information quickly on a wide range of countries, but use minimum resources, has given a report that reflects what we consider plausible judgements, not definitive answers. For example, the search for recent data was started in November 1987, and closed in early July 1988: in this time data from over 40 countries from diverse sources were compiled, evaluated and analyzed as needed – 33 data sets are included here (see Map on p5 and accompanying list)[1]. The limitations of the data and their interpretation – as discussed in the Methods Section, p178 – must be kept in mind.

[1] Additional country data are known to exist, e.g. for the Near East and Latin America, however these were not available to us in time for incorporation in the present report.

OBJECTIVES OF THE REPORT

The report aims to describe recent trends in nutrition and certain potential determining factors, country–by–country. The approach is unavoidably *ad hoc,* due to the variable availability of data. Selected indicators of likely determinants of year–to–year change are emphasized, especially related to economic stress. Such factors are thought to be having significant effects now, and protective measures are often needed. At the same time, structural adjustment programmes may provide important opportunities both for direct intervention for the vulnerable, and for moulding longer–term policies for sustained improvement. The information here, showing associations between economic stress and nutrition, is intended to be useful in considering measures to protect nutrition during adjustment and recovery.

One intended audience for the report is thus policy–makers and programme planners, in governments and international agencies. A major point it is intended to make to this audience is that nutrition does respond, negatively or positively, both when economic, food, and/or health conditions deteriorate; and when measures are successfully taken to improve these. The human suffering from economic recession and from some aspects of adjustment is real and measurable; and it could be prevented.

The users of this report should also include advocates for nutrition – national and from international agencies. In those countries for which data are given here, the country case–study may provide a starting point for discussion of trends in nutrition, their possible causes and policy implications. For countries not included here, a first step may be to make a search for similar information, possibly starting surveillance if no suitable data exist. For inter–country comparative purposes, perhaps one of the more striking observations here is the very consistency of the nutritional trends and associated indicators in country after country, highlighting the need to carefully examine policies for their nutritional effects. For other users of the report – particularly for technical people – one benefit may be an improved understanding, based on observation, of the ways in which nutrition changes: seasonally, associated often with food prices, related to drought, and so on. The graphics in the case–studies, with patterns becoming familiar as they repeat across countries, give a fresh perspective not seen in this way before.

DATA PRESENTATION

The indicators are presented here – as in the First Report on the World Nutrition Situation – to facilitate viewing linkages between indicators within countries, and for comparing the same indicators between countries. As stressed throughout, trends rather than levels of indicators are important here. The choice of particular economic and food access indicators for inclusion in the country graphics is discussed in section 4 on Methods. A brief introduction to the layout of the two pages of graphics per report will be found in the box

at the end of this Section (p7).

The new data in this report concerns trends in prevalences of underweight children, or other measures of child nutritional status. All other indicators were directly compiled from data already available through the UN agencies.

Three types of common indicators were sought: economic, food, and child nutritional status. Other health indicators were also investigated[1]. For economic indicators, measures of debt, and of economic performance (GNP) were taken from available sources. Food indicators were chosen to reflect production changes, and food available for consumption. Prices, as the general price index, and of food, are included. Most results are only available at national level. In particular, urban and rural populations, which may be differentially affected by economic recession and adjustment, cannot usually be distinguished.

> [1] While it is fully appreciated that infectious and other diseases do influence child nutritional status, to obtain an equivalent set of health indicators – consistent across countries – would be a major undertaking and was considered infeasible for this report. As an indication of their potential usefulness, some annual health statistics have been included for certain countries.

Limitations of child nutrition data are important to bear in mind in viewing the report. The cautions are given in detail in Section 4. To summarize (with particular reference to the monthly data derived from health centres) these are as follows.

The nutritional data derived from the health system are from an unknown sample; more crucial for estimating trends, possible changing bias in this sample cannot be assessed. Thus, the comparability of month–to–month samples is unknown, so that no statistical assessment of the likely validity of observed trends can be made. The reasons for thinking that the trends are meaningful are given in detail in Section 4[2].

> [2] In brief, these include the consistency of the patterns of changing prevalence, at different levels of aggregation; the strong association with likely causal factors; and the exclusion analytically of at least some sources of confounding.

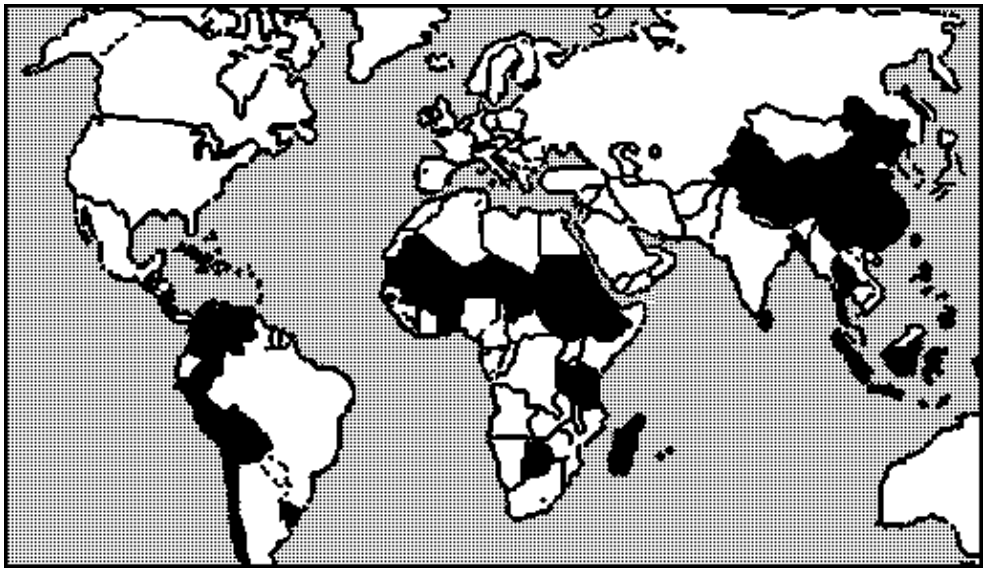
The indicators chosen and their presentation monitor factors in complicated situations. A number of associations appear to exist, for which there is good theoretical reason to expect that they may be causal. However, the caveats in interpreting these associations need to be stressed at the outset.

On the one hand, with such complex systems involving whole societies, great caution should be exercised in concluding that one factor caused another to change. Confounding effects must be borne in mind. For example, although price changes often seem to precede child underweight prevalence changes, in the expected direction, these could both result from a common cause: adjustment policy changes might raise food prices and reduce health expenditure; and depleted health services might be the real cause of increasing numbers of malnourished children. Such scenarios cannot be excluded. Further, whether causal or not, historical associations do not necessarily predict future changes.

One way, it is suggested, to look at the data is as a description of outcome – child nutritional status – under recent conditions in a variety of countries; and of likely intermediate factors. Common sense indicates that economic stress and drought are likely to lead to – to cause –hardship; and it looks as if they do. At an absolute minimum, child malnutrition should be prevented from rising under these circumstances.

On the other hand, these and other data (e.g. in the "First Report on the World Nutrition Situation") do show very strong associations at the aggregate level. Despite the uncertainties, at the population level the relationships in fact seem stable and indeed predictable.

We could cautiously go further, given that in reality most decisions have to be made based on inadequate information. It does seem sufficiently plausible that major economic changes are actually causing significant changes in nutritional status – and that this in turn reflects changes in other aspects of human welfare and health – that consideration of these serious, and fairly immediate, consequences should feature prominently when deciding on major economic policies. These consequences were suspected earlier, and "Adjustment with a Human Face" documented some; now they are becoming more firmly established, and cannot be ignored. Finally, they should now be much more widely monitored.



Map and regional listing of countries included in the report.

Africa	**Asia**	**Latin America & the Caribbean**
Benin	Bangladesh	Bolivia
Botswana	China	Chile
Burkina Faso	Indonesia	Colombia
Chad	Philippines	Costa Rica
Ethiopia	Sri Lanka	Cuba
Gambia	Thailand	Guatemala
Ghana		Jamaica
Lesotho		Nicaragua
Madagascar		Peru
Mali		Uruguay
Mauritania		Venezuela
Niger		
Rwanda		
Sudan		
Tanzania		
Togo		

THE INTERAGENCY FOOD AND NUTRITIONAL SURVEILLANCE PROGRAMME (IFNS)

The IFNS programme was started to provide assistance to developing countries in establishing or strengthening surveillance systems. A brief introduction to the programme is given in Appendix A. There are a number of linkages with this report to which it may be worth drawing attention.

Part of the data used here derives from nutritional surveillance systems. The report thus illustrates possible information outputs from such systems. It must be strongly emphasized at the same time that the key characteristic of surveillance – in nutrition as in other fields – is the use of information. A surveillance system should include the mechanism to respond to information, and only the information needed for response should be produced. Thus, while the data here illustrate outputs possibly useful at national or sub–national level, the

more important aspect will be the response mechanism. The illustration is only partial therefore: this is one type of data that may be useful, being tapped here for monitoring purposes.

Only a minority of countries, albeit a considerable number, have data on trends in nutrition, so that this report is by no means comprehensive geographically. Nonetheless, for those countries included, it is hoped that the information on which the report is based may be directly useful; often further analysis may be required. Support from the IFNS programme could be drawn upon both to generate information within countries lacking data, and to improve on and use that already available.

Future updates on trends in nutrition should be more timely and comprehensive, as nutritional surveillance develops within more countries. Ultimately, this could lead to nutritional indicators becoming as widely used as the more familiar indicators (e.g. GNP, exchange rates) are today.

A SHORT DESCRIPTION OF THE LAYOUT OF THE CASE–STUDY GRAPHICS

The indicators are presented for each country case–study on two pages. The first page shows (see overleaf) virtually the same data for each country, where available. The second page presents, at the top, sources of cereals and use of IMF credit. The Food Price Index is to be found here for the Africa section, but has been placed on the first page of graphics for the sections on Asia and Latin America & Caribbean (LAC) as 'Unfavourable Crop Conditions' and 'Food Shortages' have not been reported here for these regions.

The scales on the vertical axes vary between countries to some extent, to fit as much detail as possible into the space available and therefore due caution must be exercised if inter–country comparisons are attempted. Horizontal axes are for 1980 through 1987. Annual data are plotted mid–year. A fuller definition of the indicators and their source is provided in the Appendix.

PAGE 1 GRAPHIC

Top Panel: Each page 1 graphic is headed by a number of standard population statistics, e.g. population size, density and growth rate. Key country indicators, as used by UNICEF and the World Bank, are also given, *viz.* Infant Mortality Rate (IMR), Under 5 Mortality Rate (U5MR), and the per capita Gross National Product (GNP). These figures are calculated for 1987 apart from that for GNP which refers to 1986, and Population Growth which is based on 1980–'86. In addition, an estimated level of prevalence for underweight children (i.e. less than minus 2 standard deviations of the WHO/NCHS weight–for–age reference), based on a statistical model (see Glossary for details), is provided as a 10–point range. This estimate provides a general indication of the expected national level of underweight children for the mid–1980's. This is primarily intended to supplement the available prevalence estimates provided by health–centres or nutritional surveillance sources, which are unlikely to be nationally representative. The latter are presented at the bottom of the same page as "Trends in Underweight Children ".

Economic Indicators: Four indicators are plotted – the country's debt ratio, external debt (outstanding and disbursed), gross national product (expressed in local currency at constant 1980 prices, where available), and the monthly movement in the currency exchange rate with the US$.

Food Indicators: These are plotted in six panels: the annual food production index (per caput, base year 1979/'81 = 100), national annual cereal availability (after production, imports and food aid have been taken into account), monthly reports of unfavourable crop conditions and food shortages. (NB, as noted above, these are only reproduced here for African countries; country reports for Asia and LAC show the monthly food price index in this panel). The annual figures for nationally available Kcals per capita per day, the monthly general consumer price index (CPI, base year 1980 = 100) and, as a measure of the relative price of food, the ratio of the food price index (FPI) to that of the consumer price index, are also shown. An arbitrary guide line has been placed at the level of 2,000 Kcals to assist in inter–country comparisons. Both the Food Production Index and the Ratio of FPI to CPI have reference lines at the base value of 100.

Trends in Underweight Children: Available trend data on the prevalence of underweight children appear in this panel. If monthly health–centre data are available, e.g. from the Catholic Relief Service centres in a number of African countries, these have been used. The latter usually relate to the percentage of under 5's of less than 80% reference weight–for–age. A de–seasonalized plot will normally accompany the monthly trend data. For the majority of countries, this panel generally attempts to show changing prevalences during recent years. (NB: Particular attention must be paid to the figure titles and to the text which specify the measures and

cut–points used. The representativeness of the data in terms of age, area or other demographic group should be noted and borne in mind. Cross–country comparisons of these figures are therefore difficult and due caution must be used.) Where possible, a guide line has been added to show the expected prevalence level corresponding to the given cut–point. For example, if the cut–point is set at <–2 Standard Deviations below the median of the reference curve, then the expected percentage would be 2.3% for a normal or Gaussian curve.

PAGE 2 GRAPHIC

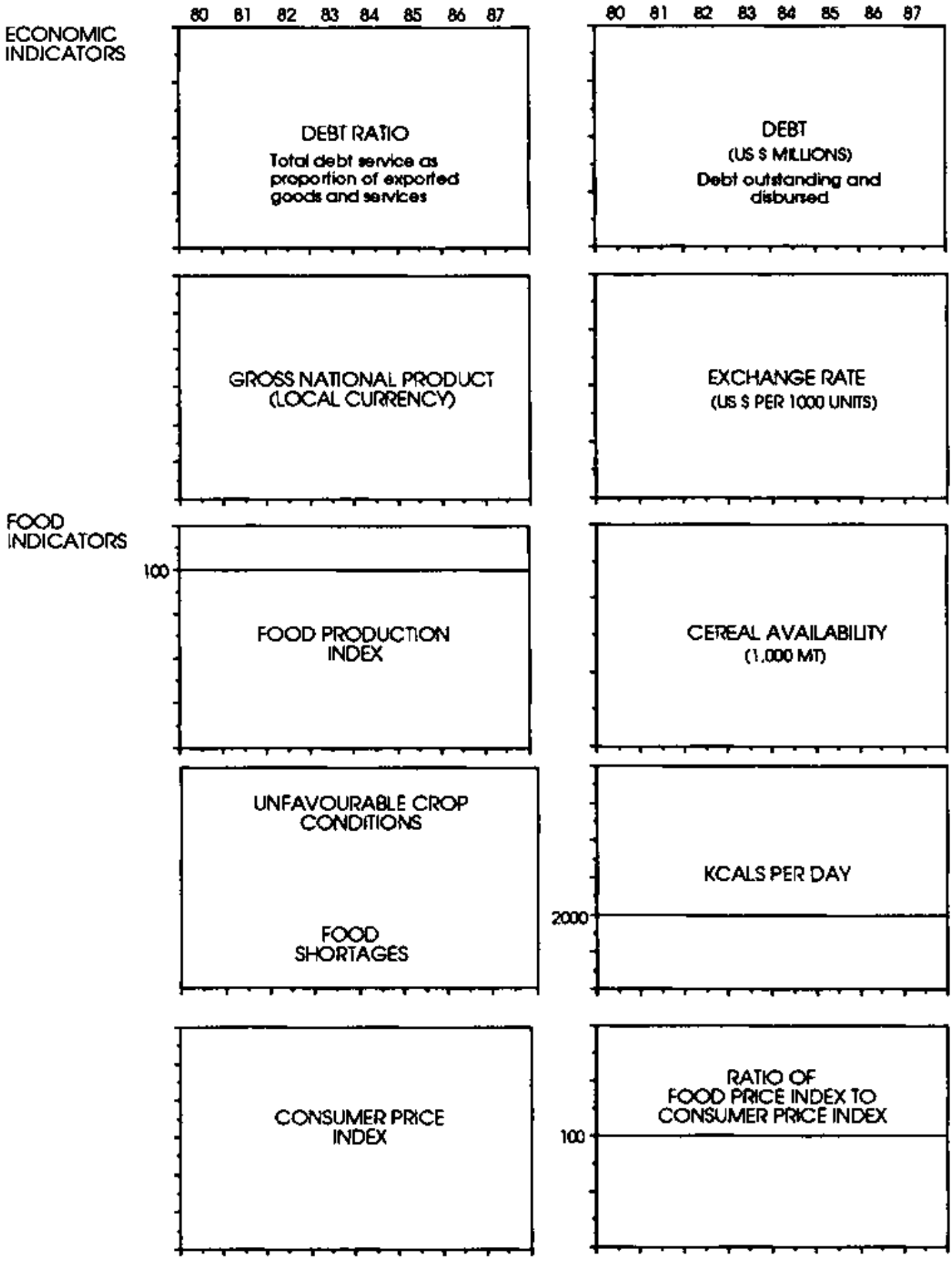
Additional Food & Economic Indicators: The top of page 2 records the national production, imports, food aid, and availability of cereals on an annual basis. The use of IMF credit is also shown; should no IMF credit be used then this is indicated by a line centred on 0.0. Below this figure (for Africa only) the monthly change in the food price index is graphed.

Additional Indicators: The balance of page 2 is used to plot other relevant data, e.g. if regional trends in underweight are available they appear here. Also, for a number of countries, other nutrition and health–related statistics are given.

COUNTRY

POPULATION: (for 1987)	IMR: (for 1987)
POPULATION DENSITY: (for 1987)	U5MR: (for 1987)
POP. GROWTH RATE: (average 1980–'86)	GNP (PER CAPITA): (for 1986)
PERCENTAGE URBAN POP.: (for 1987)	ESTIMATED PREVALENCE LEVEL UNDERWEIGHT CHILDREN: (for mid–1980's)

Estimated as % <–2 S.D.'s weight for age and given as a 10–point range. NB: this may differ from cut point used in presentation of data in bottom panel.


ECONOMIC INDICATORS
80 81 82 83 84 85 86 87
DEBT RATIO
Total debt service as proportion of exported goods and services
80 81 82 83 84 85 86 87
DEBT
(US $ MILLIONS)
Debt outstanding and disbursed
GROSS NATIONAL PRODUCT (LOCAL CURRENCY)
EXCHANGE RATE
(US $ PER 1000 UNITS)
FOOD INDICATORS
100
FOOD PRODUCTION INDEX
CEREAL AVAILABILITY
(1,000 MT)
UNFAVOURABLE CROP CONDITIONS
FOOD SHORTAGES
KCALS PER DAY
2000
CONSUMER PRICE INDEX
RATIO OF FOOD PRICE INDEX TO CONSUMER PRICE INDEX
100
TRENDS IN UNDERWEIGHT CHILDREN
%
PREVALENCE
% PREVALENCE
DESEASONALISED

2. OVERVIEW

During the 1980's, developing countries have suffered a series of economic shocks. These have included: rapid rises in the price of oil, high interest rates, and significant unfavourable shifts in terms of trade. Natural and man–made disasters such as drought and desertification have compounded the problems. In responding to these crises many countries borrowed heavily in an attempt to finance economic expansion and balance of payments' deficits, but soaring interest rates combined with a slowdown in global demand left them heavily indebted. This has meant that for many developing countries a major portion of their export earnings must be used to pay the interest on their external debts. With this worsening of the general economic climate, as experienced by most developing countries, the trend to improvement in health and nutrition noted in the seventies, has slowed or even been reversed during recent periods of exceptional stress. But it is apparent from the case studies reported here that, where conditions do improve – even temporarily – nutritional status is seen to respond positively.

In the section immediately below we review economic growth, external debt, food availability, prices and nutrition, in a global[1] context. This will be followed by three regional summaries which will concentrate on differences within these regions in terms of external debt, prices and nutrition. It will be seen that the extent to which individual countries have been able to adjust their economies in order to address their problems has varied considerably, not only between different regions but also within a given region.

[1] By 'global' we intend that inter–regional differences will be the focus of the discussion. The regional summaries provide within–region, i.e. by country, comparisons.

GLOBAL SUMMARY

Economic Growth

Prior to the oil crisis of the early seventies the global economy was expanding at a respectable 5% per annum. Subsequently, the average rate of growth has been a more modest 3% per annum. Not surprisingly, the global figure disguises marked regional differences in performance. The developed economies have continued to grow during the first half of the eighties at annual rates ranging from 1.5% to 3.3%. The economies of the developing world also show a comparable rate of growth in the aggregate, however, within this group the regional disparities are pronounced (see Table 1)[2]. While East and South Asia managed annual average rates in excess of 7% and 5%, respectively, between 1980–'85, Latin America and the Caribbean (LAC) averaged only 0.2% per annum during the same period. Sub–Saharan Africa (excluding South Africa), however, actually recorded a negative rate of growth of –0.5% per annum. When population increases are taken into account, the per capita decline in Sub–Saharan Africa, and to a lesser extent in LAC, is very evident.

[2] Regional groupings for different indicators correspond to those used by the source agency, e.g. debt: the World Bank, Food Production: FAO, etc.

Table 1 – Growth in GDP and GDP per capita by Region, 1980–1985

(Source: World Bank, Annual Report 1988. Figures for '86 & '87 are estimates.)

	GDP			GDP per capita		
	1980–'85	'86	'87	1980–'85	'86	'87
	%	%	%	%	%	%
All developing countries	3.3	4.9	4.5	1.2	2.8	2.3
Sub–Saharan Africa	–0.5	2.0	–1.5	–3.6	–0.5	–5.1

East Asia	7.7	7.3	8.6	6.2	5.7	7.0
South Asia	5.4	4.7	2.7	3.1	2.4	0.5
Latin America & Caribbean	0.2	3.8	2.5	–2.0	1.6	0.4

External Debt

The external debt (measured as debt outstanding and disbursed – DOD) for all countries combined rose nearly 80% between 1980 and 1985, from US$353.9 billion (1980) to US$631.9 billion (1985). In terms of the debt service ratio (i.e. the total debt service as a proportion of the export of goods and services) this represented a significant rise on average from 12.7% in 1980 to 18.9% in 1985. The growth in both debt and debt service ratio are shown on a regional basis in figs. 1 & 2. In figure 1 it will be seen that Latin America and the Caribbean not only maintain a substantially higher debt in absolute terms, but that it is increasing at a much faster absolute rate than the other regions. However, figure 2 indicates that while the LAC debt ratio at 26% in 1985 is higher than that of Africa, East Asia and South Asia, the latter, particularly Africa and South Asia, are beginning to rise more rapidly.

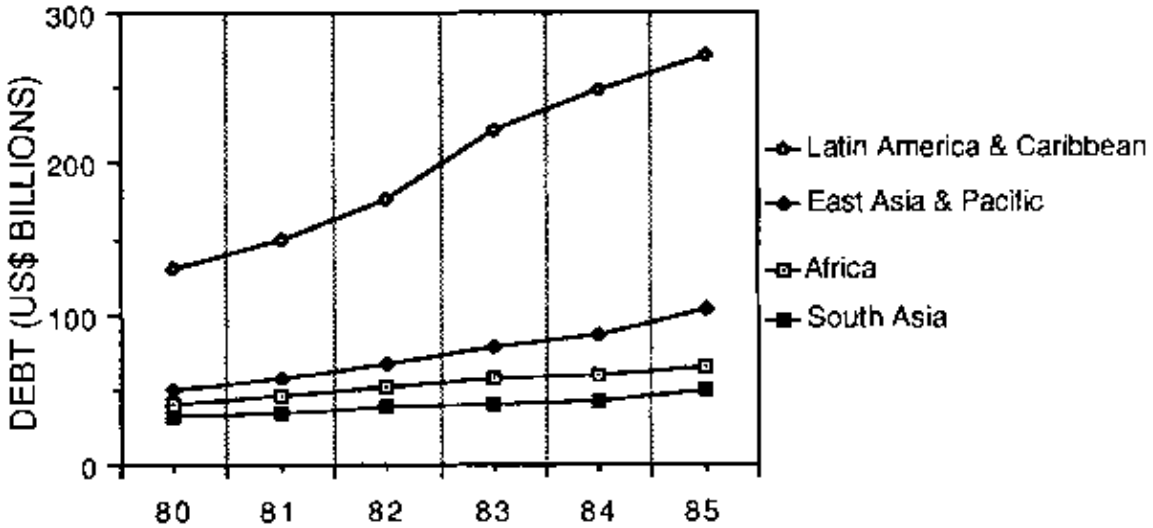


Figure 1 – Change in Debt Outstanding and Disbursed by Region

(Source: World Debt Tables 1986–87 Edition, World Bank, 1987)

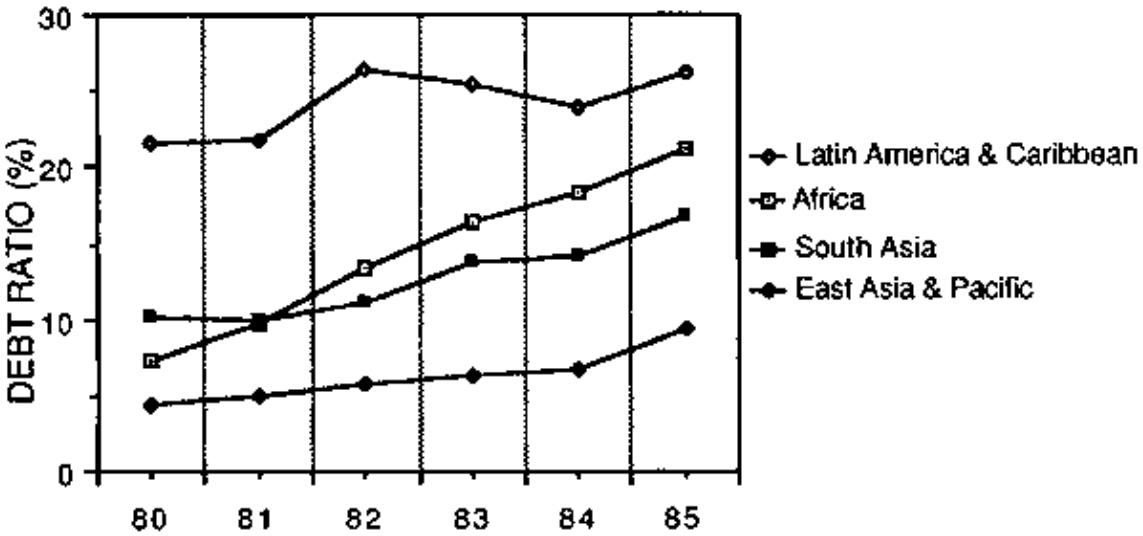


Figure 2 – Change in Debt Service Ratio by Region

(Source: World Debt Tables 1986–87 Edition, World Bank, 1987)

Food Availability

The relative levels of food production and per capita dietary energy supply are graphed in figures 3 and 4. The data has been dis–aggregated by the following regions: Sub–Saharan Africa, Middle America, South America,

South Asia and South East Asia. Between 1980 and 1985 the food production index for Sub–Saharan Africa fell overall, with the sharpest decline between '82 and '84 – the drought period. Middle and South America show a slight fall and a slight rise, respectively, by 1985. By contrast, the Asian regions experienced a growth of between 8%–11% relative to 1979/'81. The availability of dietary energy on a per capita basis follows a similar pattern to the food production index for the various regions. What is of special interest is the difference in the levels of available energy. South Asia and Sub–Saharan Africa show levels of availability well below the remaining three regions.

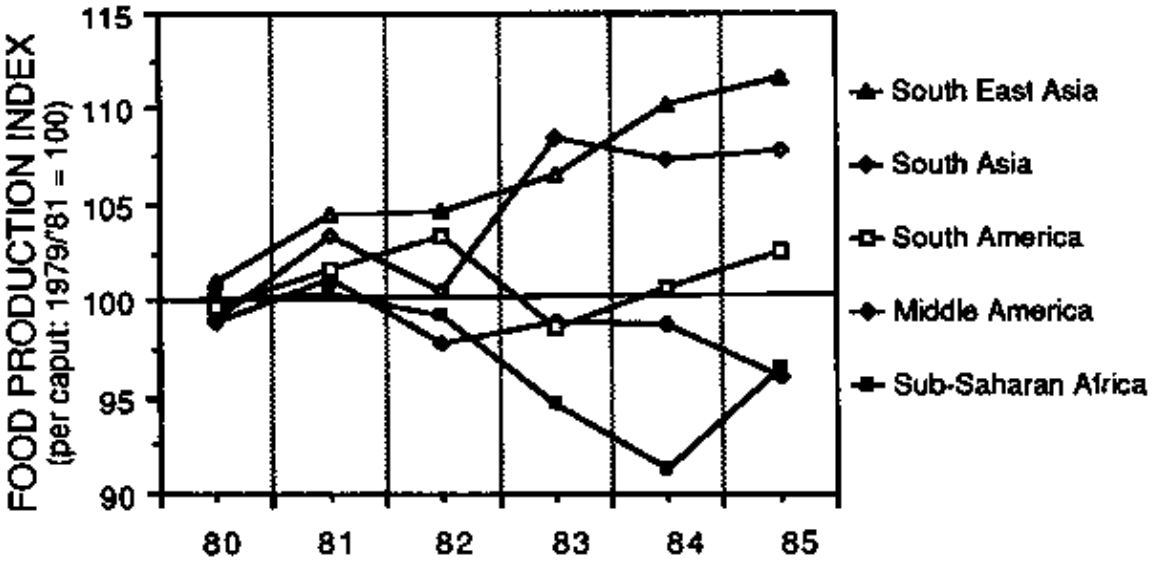


Figure 3 – Change in Food Production by Region

(Source: figures provided by FAO and reported in the Supplement to the First Report on the World Nutrition Situation, ACC/SCN, 1987)

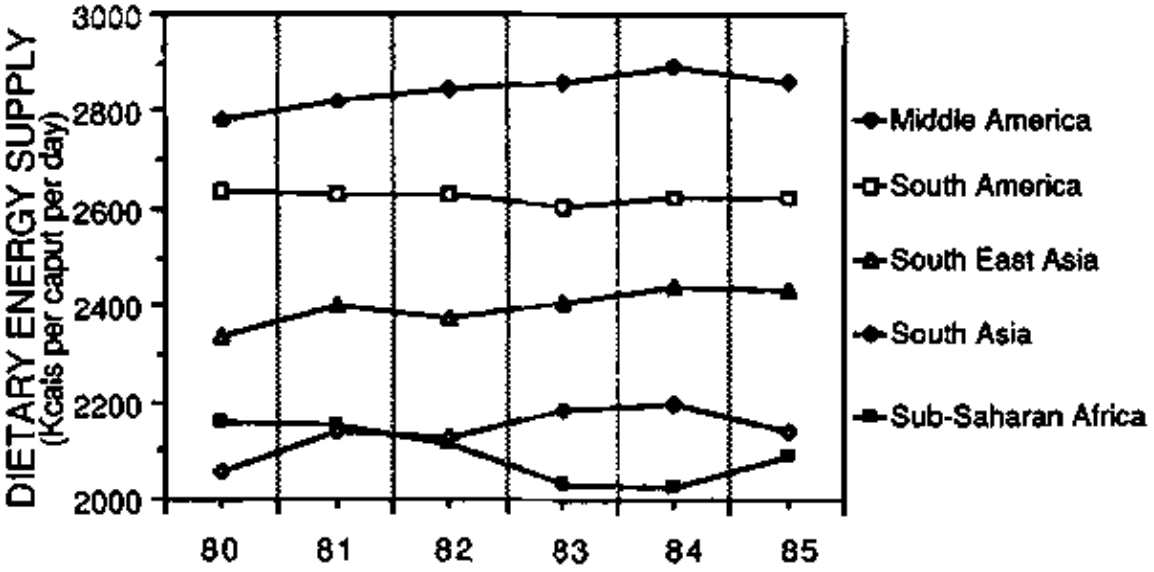


Figure 4 – Change in Dietary Energy Supply by Region

(Source: figures provided by FAO and reported in the Supplement to the First Report on the World Nutrition Situation, ACC/SCN, 1987)

Prices

The regional differences in relation to the general rise in prices and especially in the relative price of food, are best illustrated by reference to specific country examples (see figure 5). For Sub–Saharan Africa there would appear to be three distinct situations with respect to the rise in the general consumer price index. There may be exemplified by reference to Ghana, Madagascar and Ethiopia. Between 1980 and 1987, the consumer price index (CPI) rose by over 1500 points in Ghana, with accelerated growth during the crisis of 1983. Over the same period, the rise in CPI in Madagascar and Ethiopia was 300 points and 30 points, respectively. The latter two show relatively modest inflation rates by comparison with Ghana. In looking at the relative price of

food (Food Price Index/Consumer Price Index – FPI/CPI) we note that in both Ethiopia and Madagascar there has been essential parity between food prices and the general price rise. In Ghana food prices began to rise during the drought years of 1982/'83, but fell sharply – relative to CPI – in 1984 and stayed low until mid–'87.

In Asia general prices typically rose by around 100 to 200 points (see Philippines and Bangladesh, figure 5) For the Philippines, the relative price of food rose at approximately the same rate as did general consumer prices. In Bangladesh food prices dropped by around 10% between 1981 and 1983, but then increased by around 20% between 1983 and 1987.

Latin America differs critically from Africa and Asia in that several countries experienced hyper–inflation during the early eighties (see figure 5). Bolivia is a case in point; the CPI increased exponentially and had reached 7 digits by 1986. It is of interest to note that during the same period, the relative price of food rose by at most 20% and then fell back so that by 1986 the figure was closer to 10%. By comparison with Bolivia, Venezuela experienced a modest increase in the general consumer price index, but food prices – in relation to consumer prices – also rose by around 20%, although at a fairly steady rate.

Nutrition

The data show some important changes in the last five years[1]. In Africa, for example, Ghana shows significant recovery from the 1983/4 crisis; nutrition in Botswana has probably improved despite drought; in countries such as Burkina Faso and Togo, nutrition improved again after suffering in the 1983/4 drought. Others continue with marked deterioration, such as Lesotho and Madagascar. Moreover, those noted with recent improvement are probably returning to pre–crisis levels, and the underlying trend looks more likely to be static than improving.

> [1] See the respective country reports for details; also, regional trends are provided in the "First Report on the World Nutrition Situation" – these have not been reproduced here.

In Central America, contrasting trends are seen, for example, between Guatemala and Nicaragua, and Costa Rica and Cuba. Guatemala and Nicaragua have high prevalences of child malnutrition, which are rising; Costa Rica and Cuba have very low levels, which are probably continuing to improve.

Many countries in South America faced economic stress in the '80's, and the evidence, although fragmentary still, indicates effects on nutrition. In some cases, long–term improvement is apparent. In Colombia, for instance, prevalences of children underweight (and stunted) declined between 1965 and 1986, particularly in rural areas. In Bolivia and Venezuela, as other examples, economic troubles in 1983 and 1985 (respectively) were associated with temporary increases in child malnutrition prevalences.

The countries in Asia for which recent data were available, show differing trends, probably related to their economic and political situations. Where development policies and public services could be sustained in the '80's, such as in Indonesia and Thailand, there is evidence for gradual improvement in nutrition. However, for example, in the Philippines, the available data point to no improvement or possibly increasing child malnutrition prevalences. In Bangladesh there is some indication that improvements in the late 70's may not have continued. Particularly in urban areas, China has had sustained increases in child growth from 1950 to the early '80's.

One way of bringing together the results is to look at different perspectives in time, from decade–long through to monthly.

The long–term, decade–by–decade, trend in child nutrition seems to be of gradual improvement, if undisturbed by crisis (political, economic or drought). In Africa, where per capita incomes and food availability have declined in the last 20 years, nonetheless a slight improvement was detected in the 1970's; but this was reversed in the 1980's. Elsewhere, increasing income, education, food availability, and health services have improved welfare, except where interrupted by such factors as economic recession.

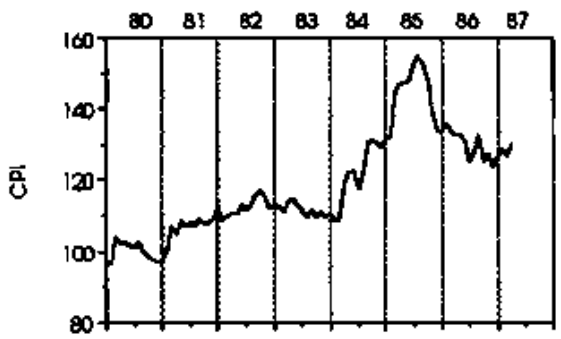
Taking a shorter perspective, of within–decade changes, the disrupting effects of crises can be seen in country after country. A severe crisis affects levels of living and nutrition for several years. In Ghana malnutrition levels were elevated from 1982 through 1985; in Nicaragua they remain high and are may well be rising; in the Philippines, the crisis of 1984/85 was reflected in increased underweight prevalence, reversing previous trends. One can see retrospectively in some cases that crises pass and malnutrition falls – Ghana again illustrates this. But the implication is clear that more rapid and more effective measures are warranted during such crises to protect health and lives: to prevent the peaks of malnutrition, no doubt associated with

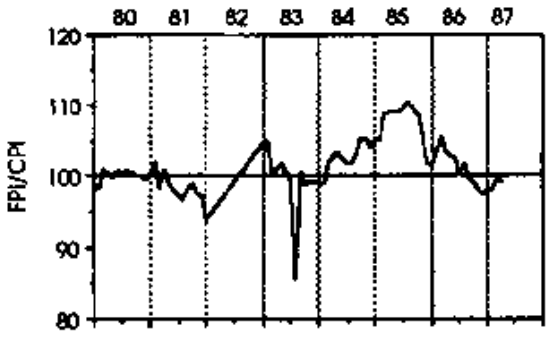
increased mortality, occurring.

Year–to–year, malnutrition rates are seen to respond to drought, food shortages, price inflation, and the like. The response appears to be quite rapid – possibly with a lag of a few months in relation to prices (which has implications for timely warning) – and the effects of food shortage may linger (e.g. see data from Togo).

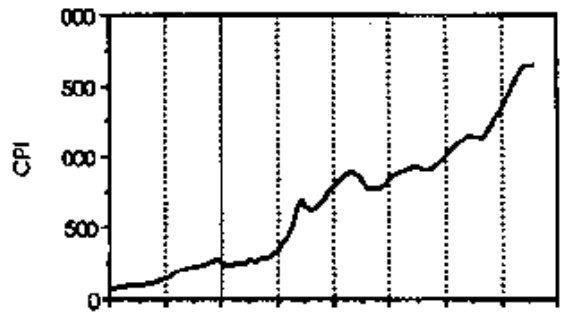
Seasonal patterns of malnutrition are clearly seen in most of the African data, and elsewhere when the information is available, such as in Chile and Thailand. Seasonal variations in women's weight are clearly shown in the data from the Gambia. Policies aimed at preventing malnutrition should perhaps give some emphasis to reducing the peaks of seasonal malnutrition, even in times of adequate rainfall.

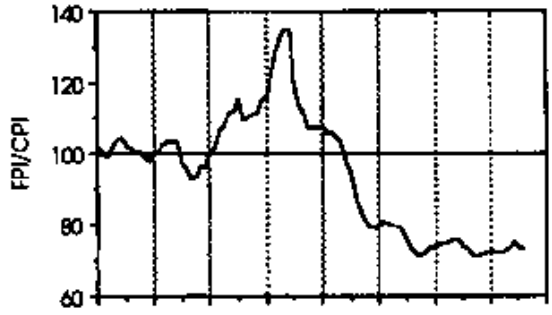
ETHIOPIA



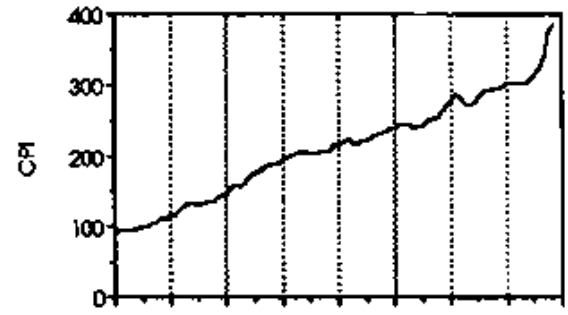


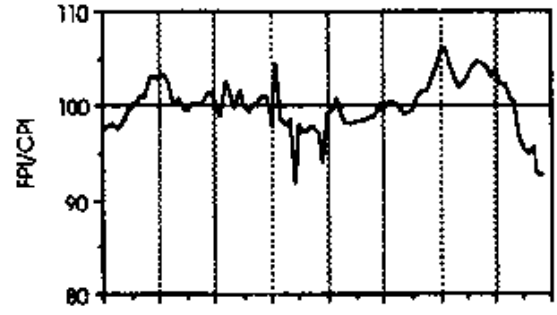
GHANA



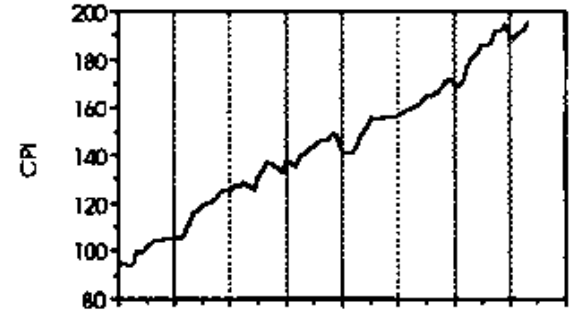


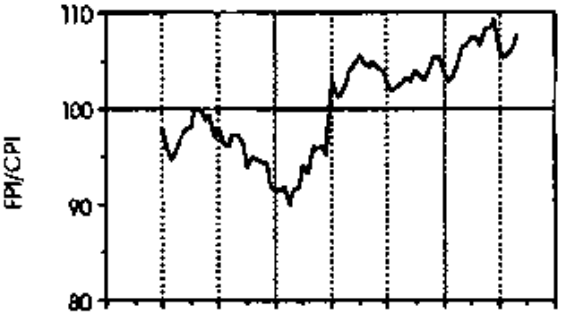
MADAGASCAR



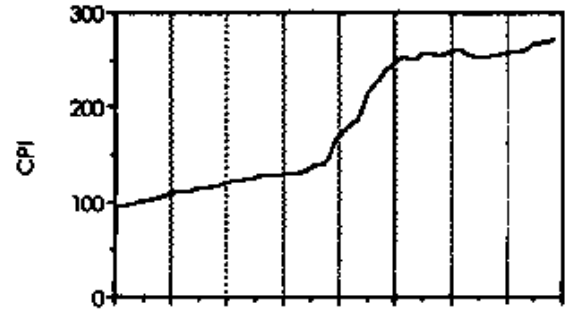


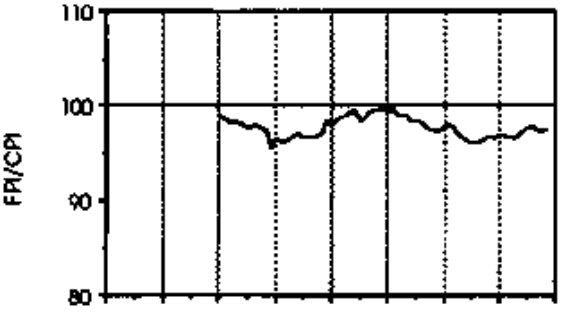
BANGLADESH



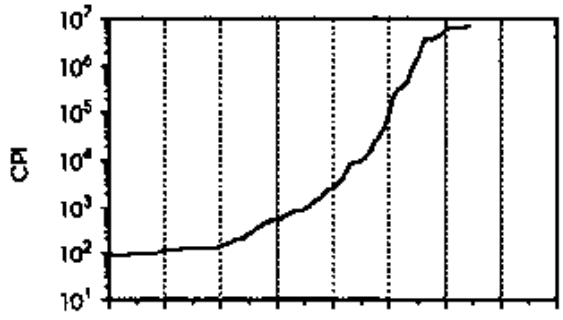


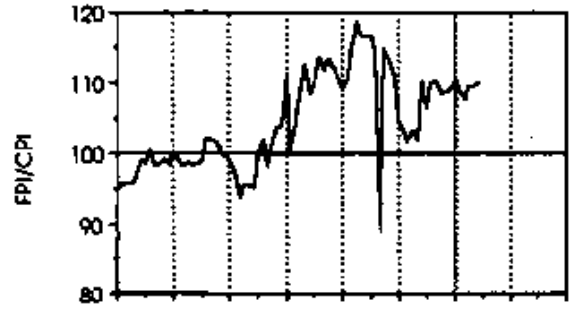
PHILIPPINES





BOLIVIA





VENEZUELA

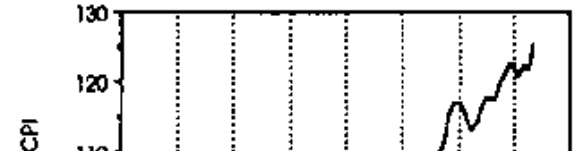


Figure 5 – Change in the Consumer Price Index and in the relative price of food for selected countries in Africa, Asia and Latin America

AFRICA

External Debt

Trends in debt outstanding and disbursed (DOD) and in the debt ratio for 11 selected Sub–Saharan countries are shown in figures 6 &7. With respect to DOD, the countries have been divided into two graphs in accordance with the scale of their external debt. In the first group –those below US$1 billion – the trend is ever positive over the period, with the exception of Togo which also has the highest debt for this set of countries (see figure 6a). The latter's DOD actually decreased between 1980 and 1984, but has been rising in 1985 and 1986. The second group of countries have DOD in excess of US$1 billion, and in the case of the Sudan the figure is close to US$6.5 billion in 1985 (figure 6b). Sudan's debt is seen to be not only the largest but appears to be rising at a faster rate than the 4 other countries in this grouping. While Botswana's total DOD is by no means unusual in relation to those graphed, it is the highest when expressed on a per capita basis (see Table 2). The Sudan has the second largest per capita DOD of these selected countries, while Rwanda and Ethiopia have the lowest. In terms of their Debt Ratio, the rankings differ once more. (To avoid too much overlap, the debt ratios have also been divided between two graphs.) Botswana, Lesotho and Rwanda, have the lowest ratio of total debt service to exported goods and services (Debt Ratio, see figure 7a) at around 5% in 1985; Madagascar and Togo have the largest, with the latter's debt ratio at just under 30% by 1985 (figure 7b). Ethiopia, Ghana and the Sudan had their debt service ratio rise to just over 10% by 1985.

Table 2 – Debt Outstanding and Disbursed on a per capita basis for 1986

(Source: World Development Report 1988, World Bank)

Country	DOD per capita (US$)
Benin	185.9
Botswana	322.7
Burkina Faso	76.0
Ethiopia	45.7
Ghana	107.0
Lesotho	113.7
Madagascar	248.5
Rwanda	66.4
Sudan	312.2
Tanzania	158.6
Togo	284.5

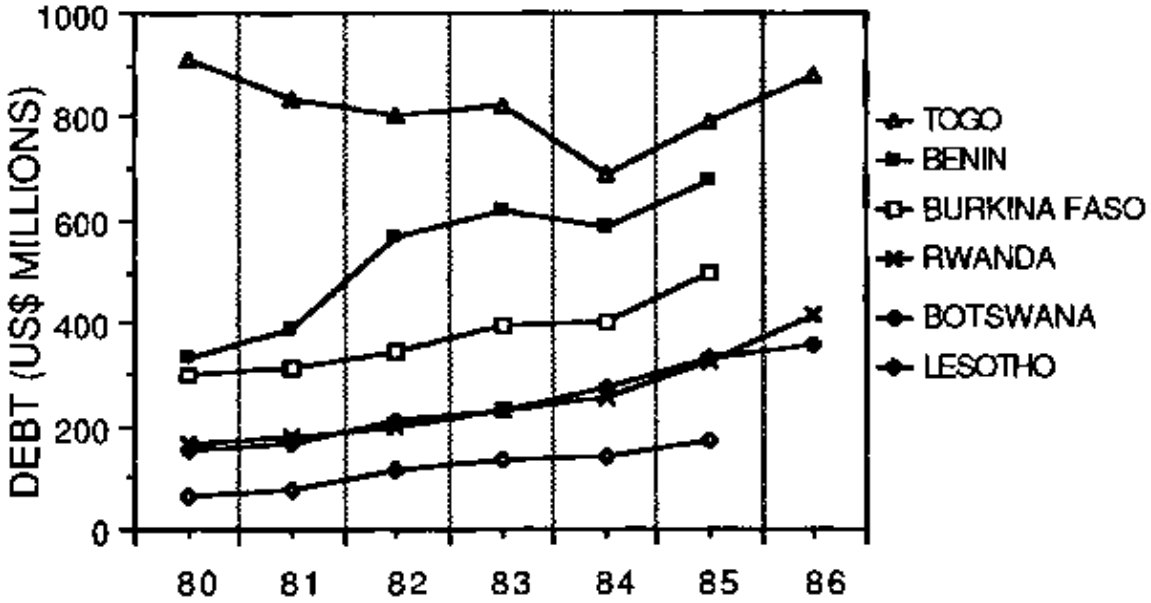


Figure 6 a – Trends in debt outstanding and disbursed for selected African countries

(Source: World Debt Tables 1986–87 Edition, World Bank, 1987)

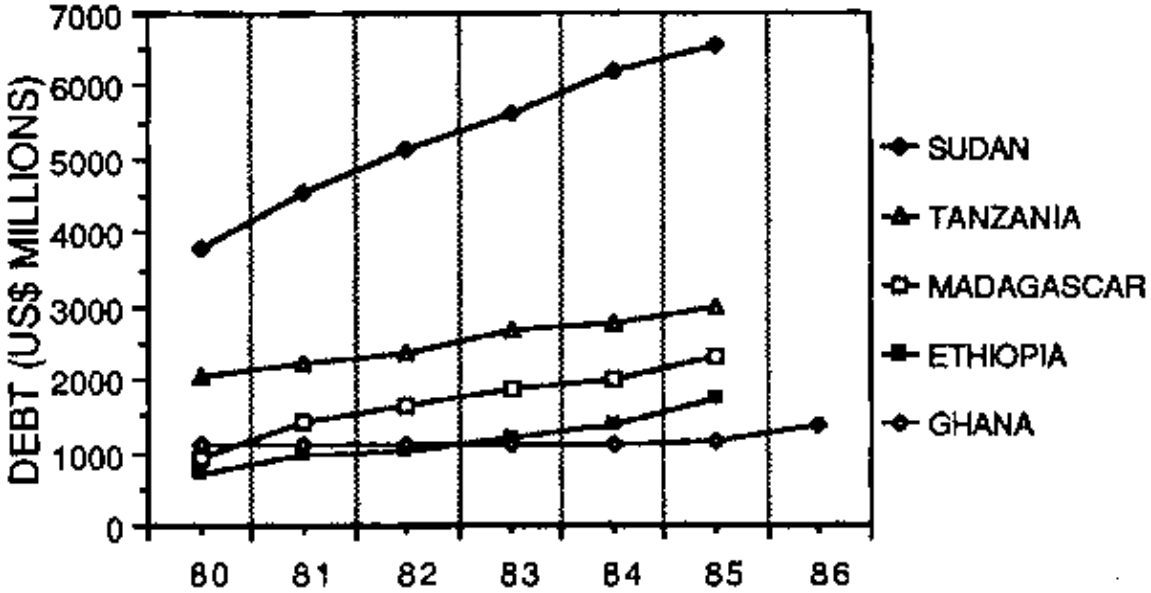


Figure 6 b – Trends in debt outstanding and disbursed for selected African countries

(Source: World Debt Tables 1986–87 Edition, World Bank, 1987)

Prices

Ghana experienced a rate of inflation which far exceeded that of any other country in the selection for Sub–Saharan Africa in the report. By mid 1987 the CPI was 1648 relative to the base figure of 100 for 1980 (see figure 5 above). The exponential growth of inflation began in 1983, as a result of the country's economic and natural crises. The relative price of food may be seen to have peaked at this time and then to decline later in the year and continue downwards until late 1985. A number of other countries experienced high levels of inflation, for example, Madagascar, Sudan and Tanzania. CPI's quadrupled and more for these countries relative to 1980. Finally, countries such as Botswana, Ethiopia, and Niger, all had comparatively modest price rises, i.e. not actually doubling during the period being considered.

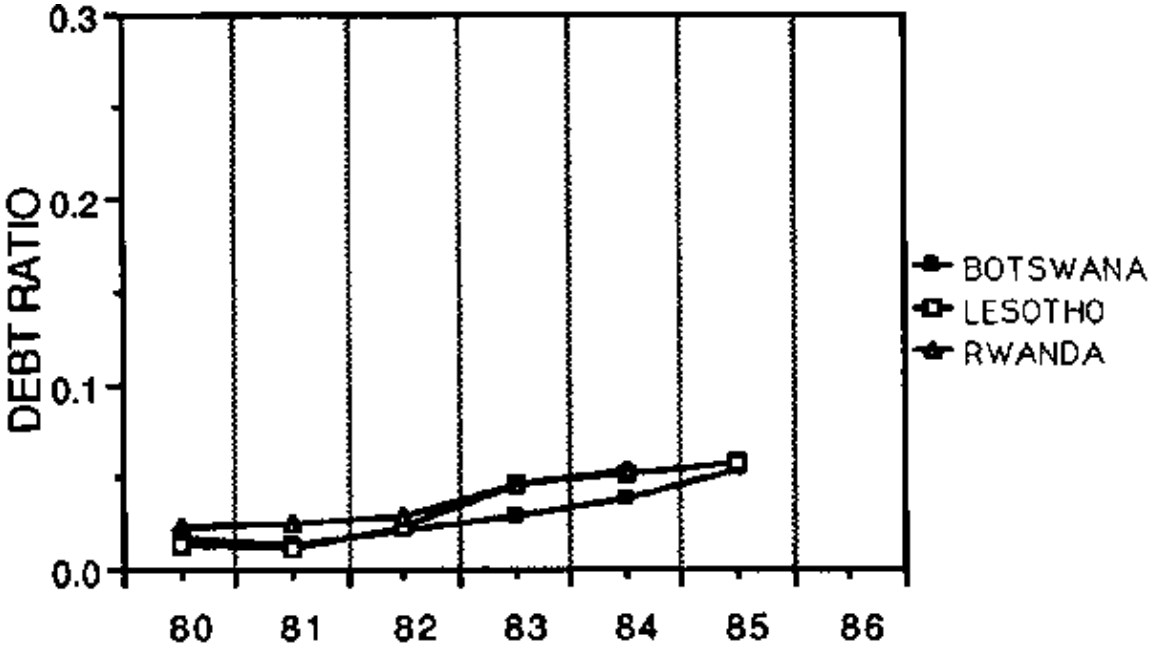


Figure 7 a – Trends in the debt ratio for selected African countries

(Source: World Debt Tables 1986–87 Edition, World Bank, 1987)

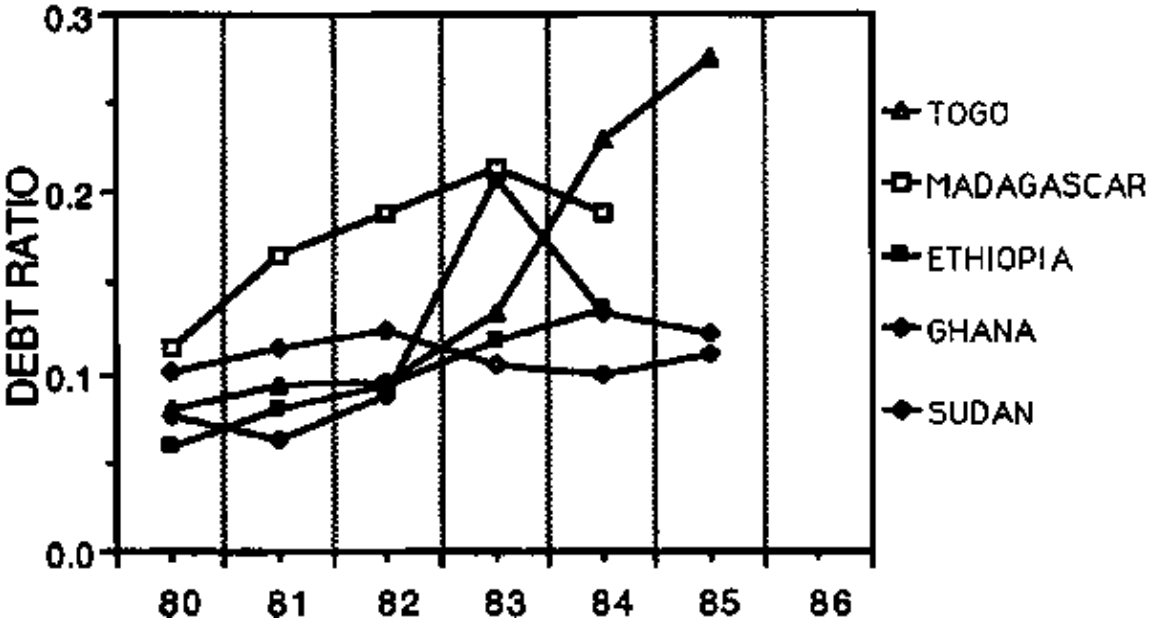


Figure 7 b – Trends in the debt ratio for selected African countries

(Source: World Debt Tables 1986–87 Edition, World Bank, 1987)

Nutrition

The trends in child underweight prevalences, for the nine countries for which these are available on a monthly basis, are summarized in figure 8. Descriptive text is given with each case–study.

Three patterns of trend may be discerned. First, the underlying trend may be static or possibly showing a slight increase in prevalence. Second, – for the majority – the underlying trend is also probably static, but recent events have produced a significant peak in prevalence. Third, there may be clear evidence of increasing prevalence.

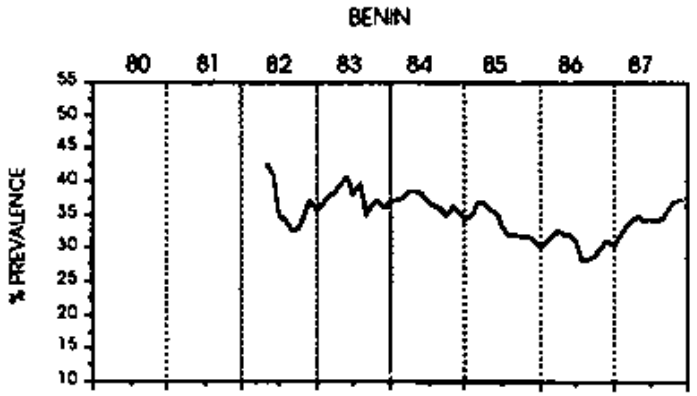
In Rwanda, prevalences appear to have changed little from 1982–1986. This is broadly in line with the food availability data. However, in 1987 food production was sharply down; it might be expected that food availability suffered and that malnutrition significantly increased.

Benin, Ghana and Togo show some similarity in pattern. In all three countries, prevalences appeared to peak in 1983, gradually falling to underlying levels by 1986. Drought clearly contributed, and in Ghana the economic crisis had a major impact. For all three countries, there are indications of another increase in malnutrition in late 1987. In Burkina Faso also, the overall data indicate somewhat increased malnutrition in 1983–85. Especially in the north, where rainfall was particularly erratic, already high prevalences may be continuing to rise. Niger (based on data for the capital, Niamey) may be showing long–term deterioration in nutrition, similar to Burkina Faso. Botswana's drought relief programme is well–known, and no doubt contributed to containing malnutrition from 1983–87. The outlook depends heavily on future rainfall.

Lesotho and Madagascar give examples of particular concern, with malnutrition rising from 1984/5 onwards. Economic conditions have been particularly severe in Madagascar. In cases such as these, it seems clear that further action is needed to prevent a continuing deterioration in nutrition.

More fragmentary nutritional data from a further seven countries are included in the case–studies.

The nutrition situation in Ethiopia is known to be very serious. Trends in mean weight–for–length for Ethiopia's Wollo province are shown in the case study. It will be seen that, in this province, a marked deterioration (with some seasonal recovery being evident) occurred between 1982 and 1984. In Sudan, the position in 1987/8 also appears of grave concern, with production down in '87 and food shortages reported. Chad, Mali and Mauritania are likely to be similar in nutritional conditions to Burkina Faso and Niger. Tanzanian data are of particular interest, as they are considered to demonstrate the positive effects in one region of an intensive programme aimed at improving nutrition.


BENIN
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% PREVALENCE
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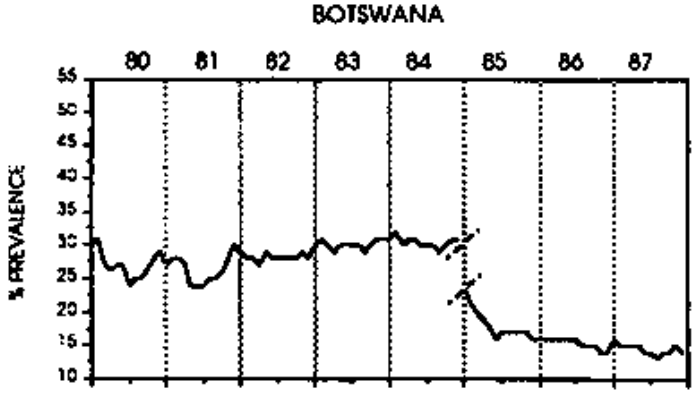
BOTSWANA
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% PREVALENCE
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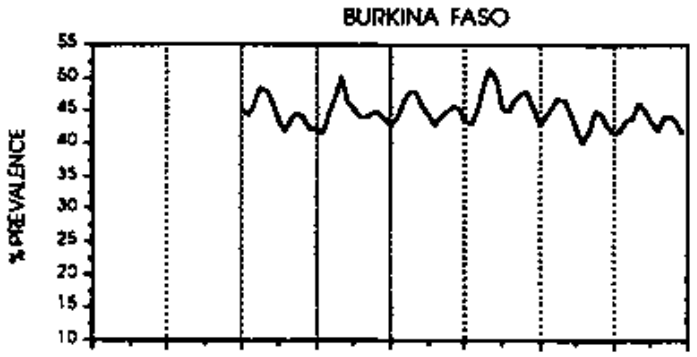
BURKINA FASO
% PREVALENCE
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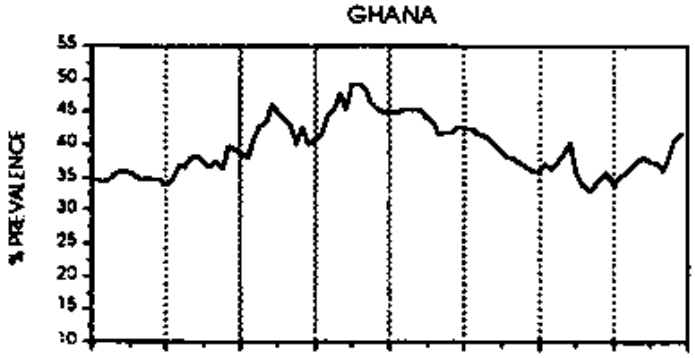
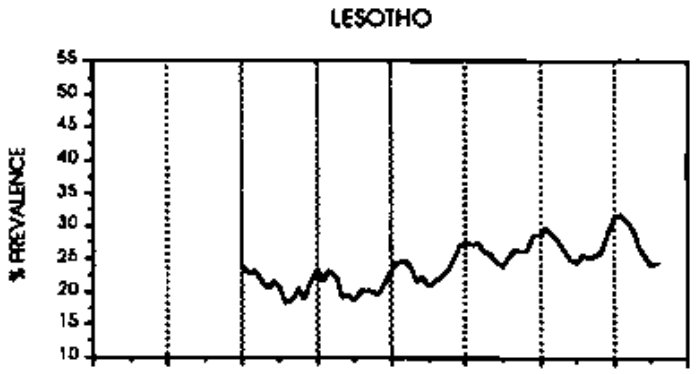

GHANA
% PREVALENCE
55 50 45 40 35 30 25 20 15 10


LESOTHO
% PREVALENCE
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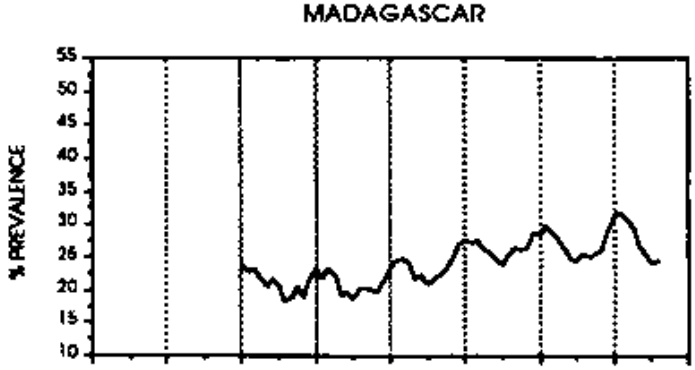
MADAGASCAR
% PREVALENCE
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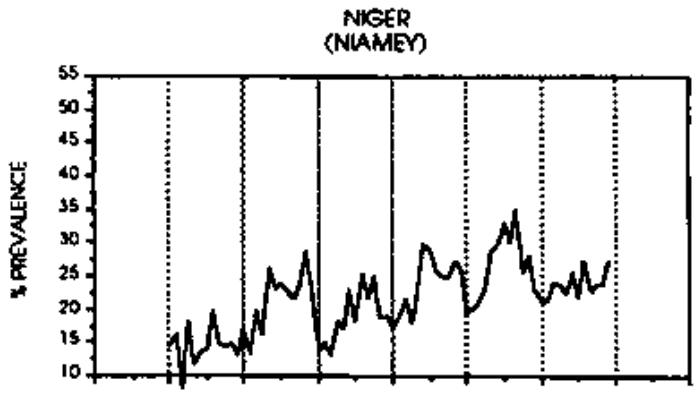
NIGER
(NIAMEY)
% PREVALENCE
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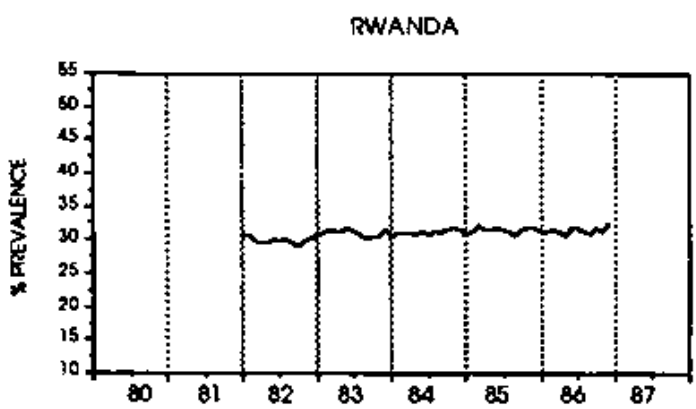
RWANDA
% PREVALENCE
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80 81 82 83 84 85 86 87

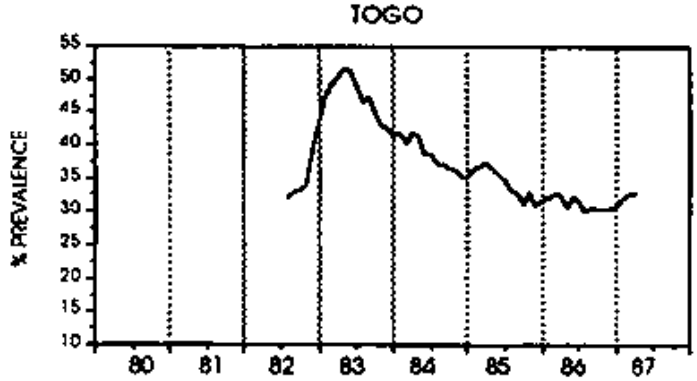

TOGO
% PREVALENCE
55 50 45 40 35 30 25 20 15 10
80 81 82 83 84 85 86 87

Figure 8 – Trends in the percentage prevalence of underweight (< 80% Wt/Age) pre–school children in selected African countries

ASIA

External Debt

The region overall experienced a steady economic growth during the 1980's, although individual country exceptions – especially India – are notable. Of immediate impact in the graph of trends in debt outstanding and disbursed (DOD, see figure 9) is the scale and rate of growth of DOD for Indonesia. While the total debt for Indonesia far exceeds that for the other 5 countries, on a per capita basis it is the Philippines which has the highest figure (see Table 3) with Indonesia coming only fourth in this ranking. For all of these countries we see that the debt ratio (figure 10) has been growing steadily from, typically, between 5%–10% in 1980 to 13%–20% in 1985. The exception to this trend is China, which maintained its debt ratio below 1.5%.

Table 3 – Debt Outstanding and Disbursed on a per capita basis for 1986

(Source: World Development Report 1988, World Bank)

Country	DOD per capita (US$)
Bangladesh	70.5
China	16.3
Indonesia	191.7
Philippines	346.0
Sri Lanka	214.1
Thailand	209.5

Prices

Based on the evidence from the selected countries, consumer prices have risen comparatively moderately during the period from 1980 to 1987 (see figure 5 above). Generally the rate of increase has been steady, although in the Philippines there was a marked rise in the rate toward the end of 1983 which continued until late 1984 – corresponding to the crisis during and after the change of government. For the examples shown the rise in the price of food relative to the general consumer price rise appears to have been low, i.e. below 10% (figure 5 also). In the Philippines food prices generally rose less quickly than consumer prices. [In fact in Thailand (see the country report) the rate of increase in the relative price of food has been falling; this is also the situation in Indonesia (cf. country report), although the trend shows signs of reversing since 1986.] Bangladesh, subsequent to 1983, experienced a faster rate of increase in food prices over general prices.

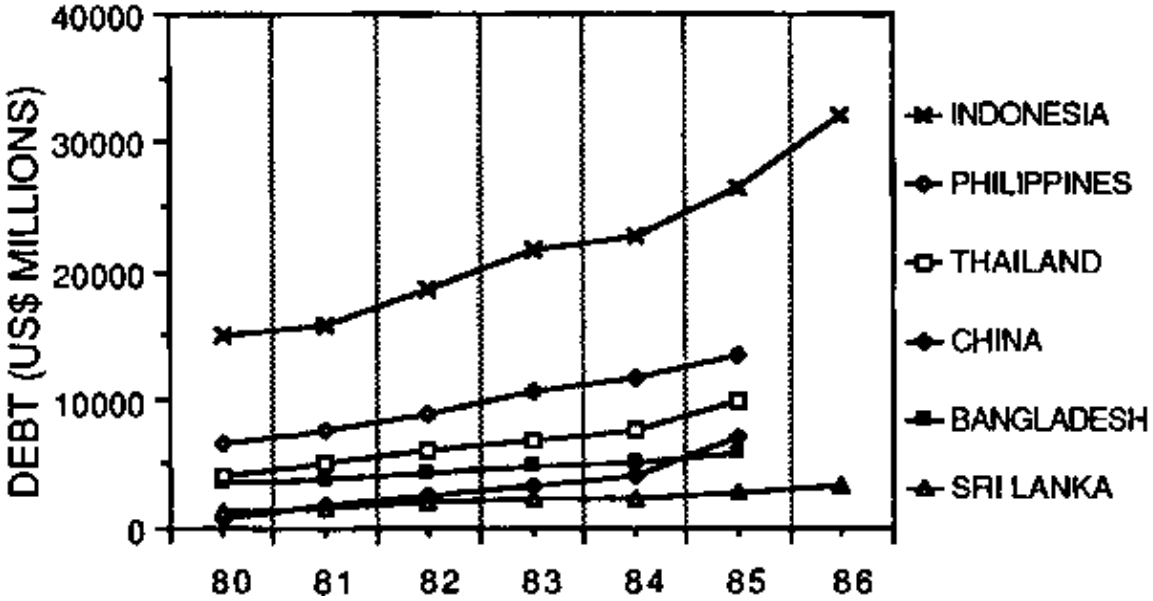


Figure 9 – Trends in Debt Outstanding and Disbursed for selected Asian countries

(Source: World Debt Tables 1986–87 Edition, World Bank, 1987)

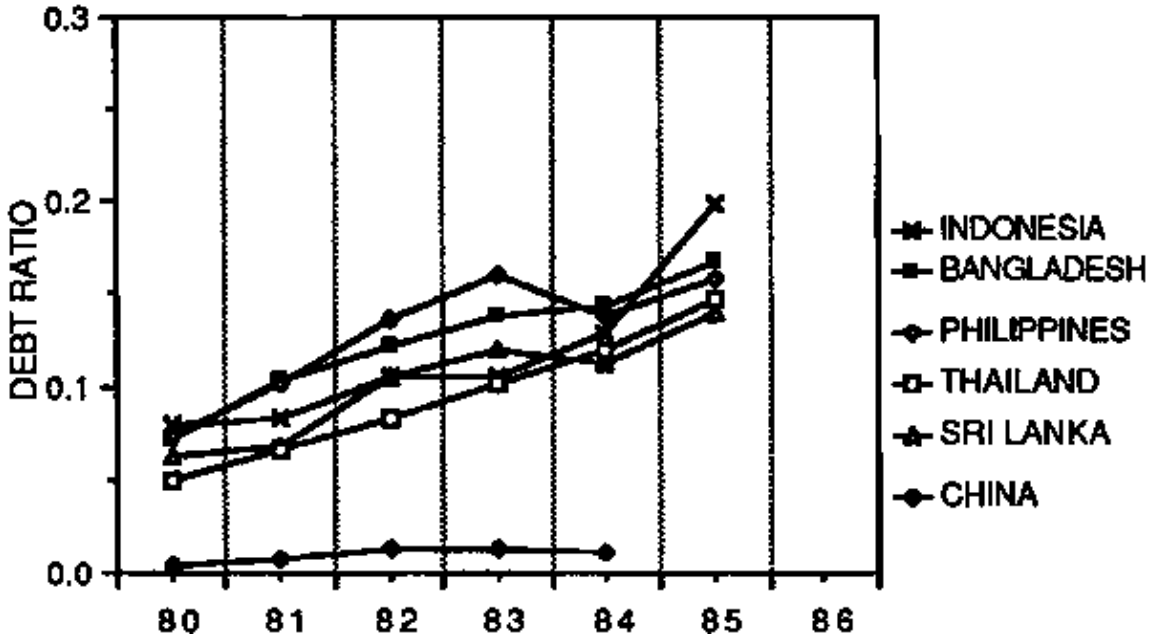


Figure 10 – Trends in the Debt Ratio for selected Asian countries

(Source: World Debt Tables 1986–87 Edition, World Bank, 1987)

Nutrition

To establish a systematic pattern of nutritional status development for the Asian region is problematic, given the differences in time scales for which data are available in the selected countries. This is further compounded by a lack of consistency across countries in relation to the measure used[1]. Each country will be reviewed briefly, followed by a summary overview (see figure 11).

[1] This point is especially pertinent when looking at country differences in the accompanying figure. Differences in the measure used and the choice of cut–point preclude cross–country comparisons.

Bangladesh:

From the available evidence, the prevalence of wasting has declined significantly over the ten year period between 1975 and 1985, particularly after 1981/'82. The results are from four rural surveys conducted since 1975. The measure is prevalence of wasting (<80% reference Wt/Ht) in pre–school children. The reliability of

the '75 and '81 results – and the very high rates of wasting reported – must be considered in the context of their small sample sizes. The results from the '82 and '85 studies suggest a slight deterioration over this more recent period.

China:

A pronounced increase in mean weight is evident for both sexes and all age groups over the three decades. Much of the gain occurred by the late seventies with comparatively little change in the eighties. One exception, to be seen in both males and females, is for the 13 year old's. This group continued to gain in mean weight up to 1985. Broadly speaking, similar patterns may be see in mean height gain for the same age groups, and in mean weight gain for the preschool children (as reported in the country profile).

Indonesia:

Prevalence of underweight (<70% reference Wt/Age) in the pre–school Urban children has shown a substantial improvement by 1986 over the 1978 figure. However, at the national and rural levels this improvement is not evident. Urban prevalences are also noticeably lower than those in rural areas.

Philippines:

Overall, there is little evidence of any real improvement over the last decade. The prevalence of underweight (<75% reference Wt/Age) in pre–school children shows a marked decline from 1978 to 1982. This trend was reversed by 1984. The figure for 1985 indicates a possible further deterioration, with marginal improvements following in 1986 and '87. Regional prevalences (reported in the country report) also indicate pronounced inter–regional differences.

Sri Lanka:

The available evidence would indicate a substantial improvement between 1980 and 1986 for Urban (other than Colombo Metro) and Rural districts. The improvement for the Estate group is slight. Data from two survey periods are available: 1980/'82 and 1986, and relate to the prevalence of growth retardation (<–2 Std. Dev. reference Ht/Age) for somewhat different age groups.

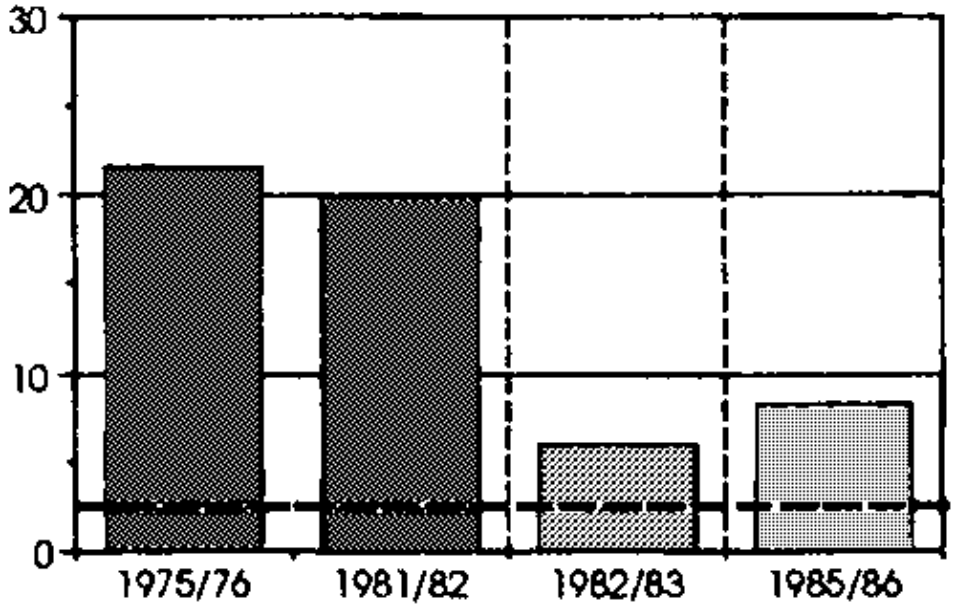
Thailand:

The prevalence of first degree malnutrition (Gomez classification) in pre–school children has dropped steadily from 28.5% in 1983 to 20.9% in 1987. Second degree and third degree malnutrition combined were 6.7% in 1982 down to 2.5% in 1987. During the same period the prevalence for under 5's in Bangkok has gone from 14.7% to 8.6% (1st. degree malnutrition) for 1982 and 1987, respectively. Urban–rural and inter–provincial differences are marked (cf. country report).

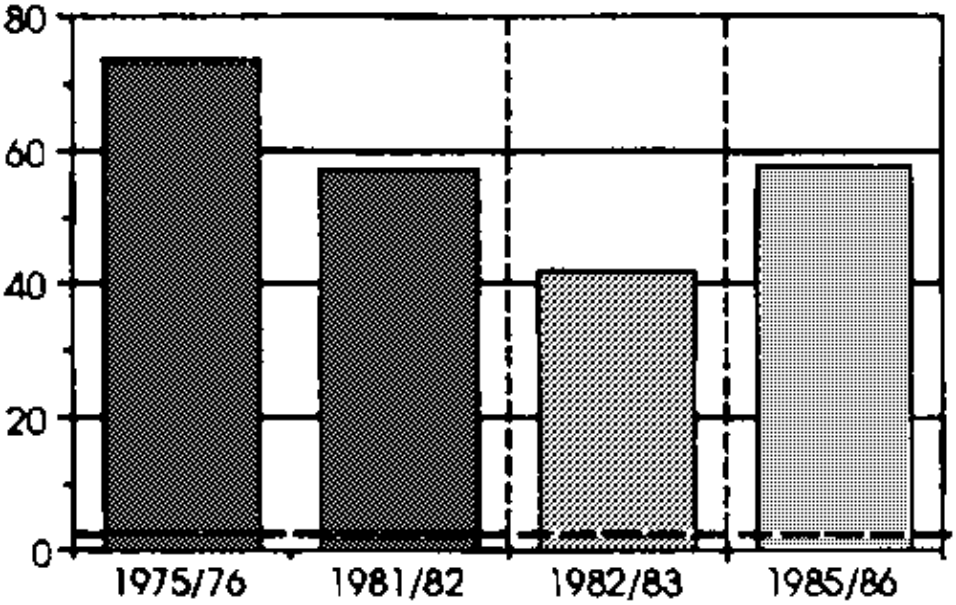
Of these 6 countries, four permit a comparison between the seventies and the eighties (Bangladesh, China, Indonesia, and the Philippines). Some degree of improvement is evident during this period for these countries, although for Bangladesh and the Philippines the more recent trend may be negative and for Indonesia the improvement appears to be in the Urban district only. Sri Lanka and Thailand show improvements during the course of the eighties.

Figure 11 – Trends in anthropometric indicators for selected Asian countries

BANGLADESH

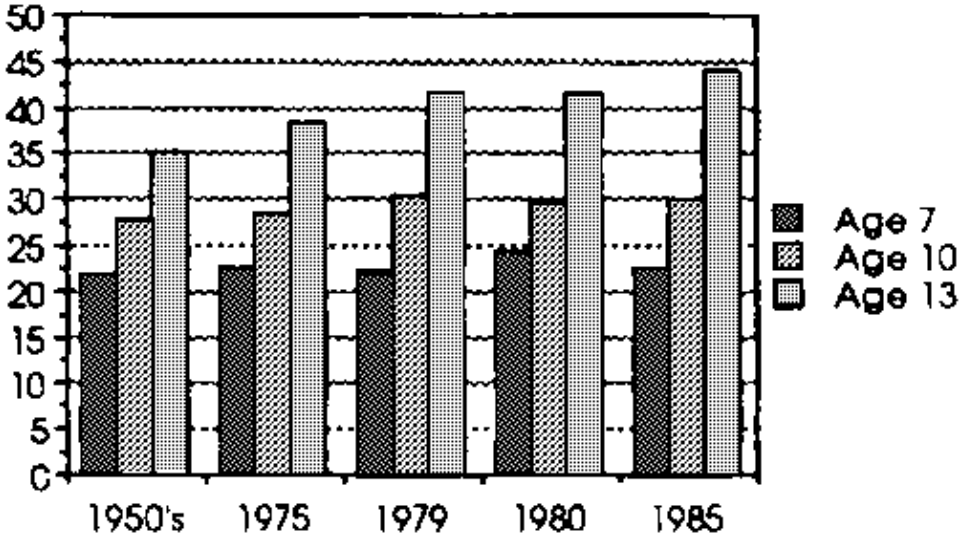


% PREVALENCE – Prevalence of wasting (< 80% Wt/Ht) in children aged 0–59m('76& '82). 3–71 m ('83) and 6–71 m ('86); Rural.

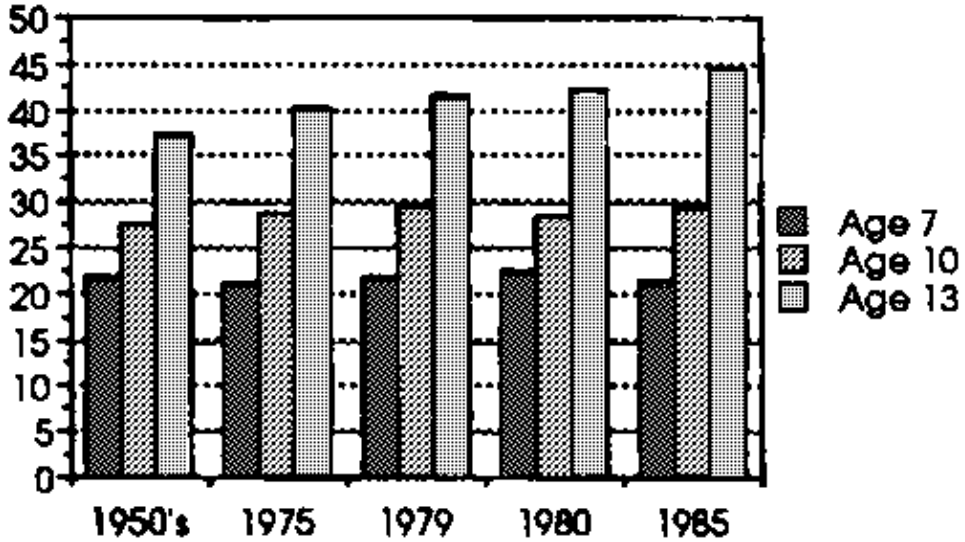


% PREVALENCE – Prevalence of stunting (< 90% Ht/Age) in children aged 0–59 m ('76 & '82). 3–71 m ('83) and 6–71 m ('86); Rural.

CHINA

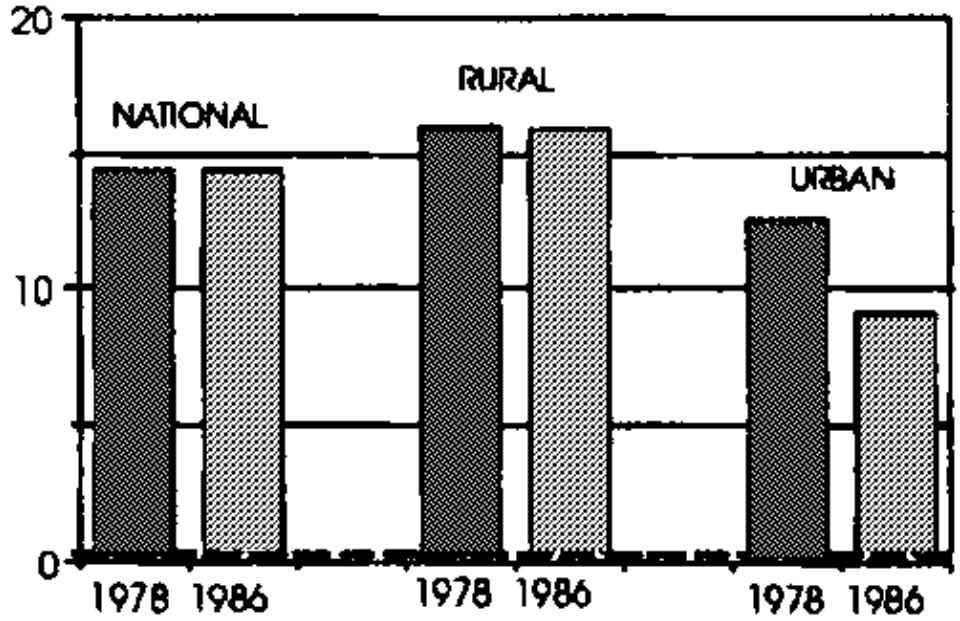


MEAN WEIGHT (Kg) – Change in mean weight for males aged 7–13 years in Beijing (Urban) since the 1950's.



MEAN WEIGHT (KG) – Change in mean weight for females aged 7–13 years in Beijing (Urban) since the 1950's.

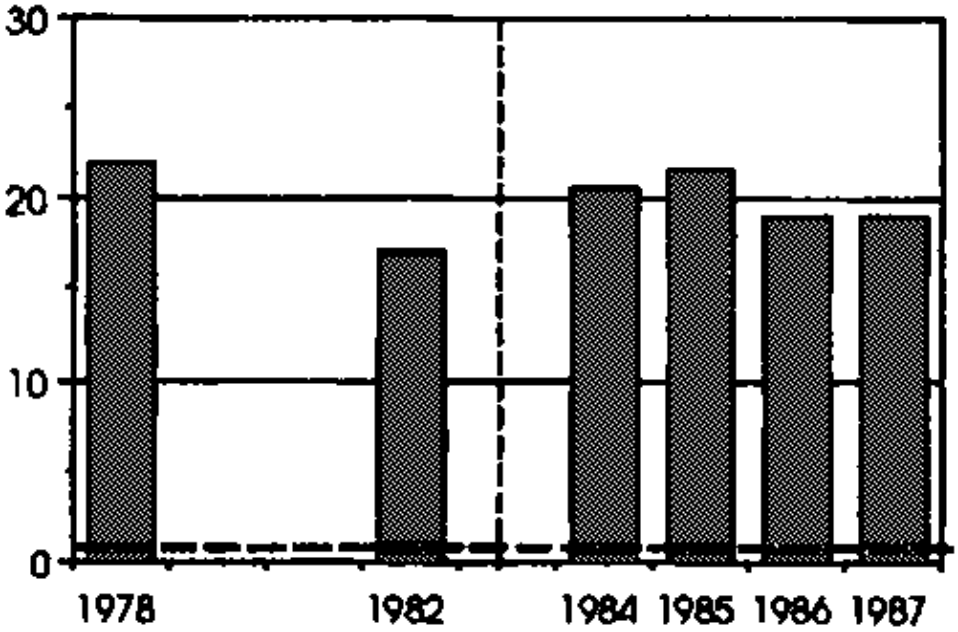
INDONESIA



% PREVALENCE – Prevalence of underweight (<70% Wt/Age) in children aged under 5 years: 1978 & 1986.

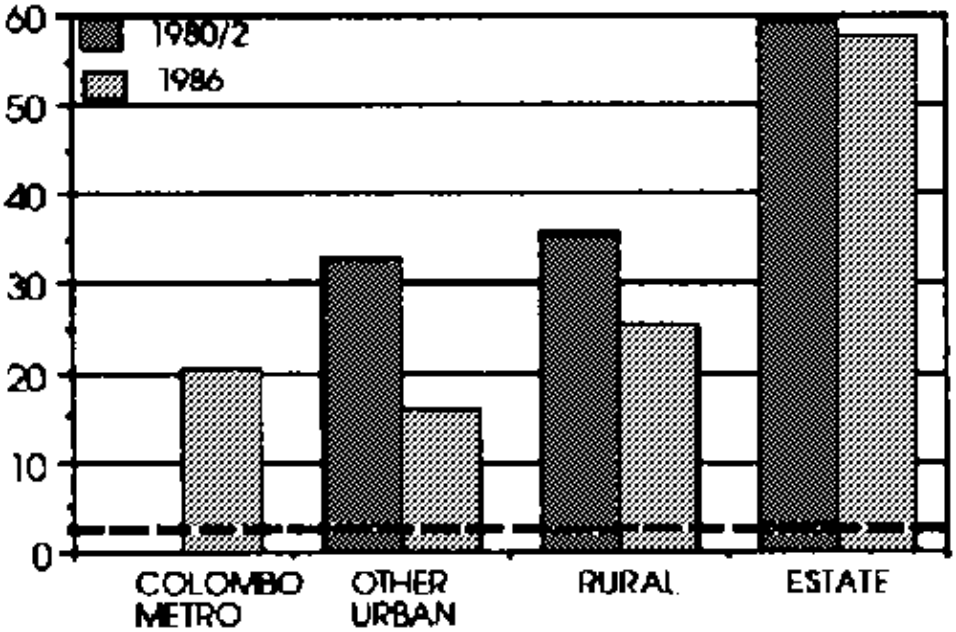
By Urban/Rural area.

PHILIPPINES

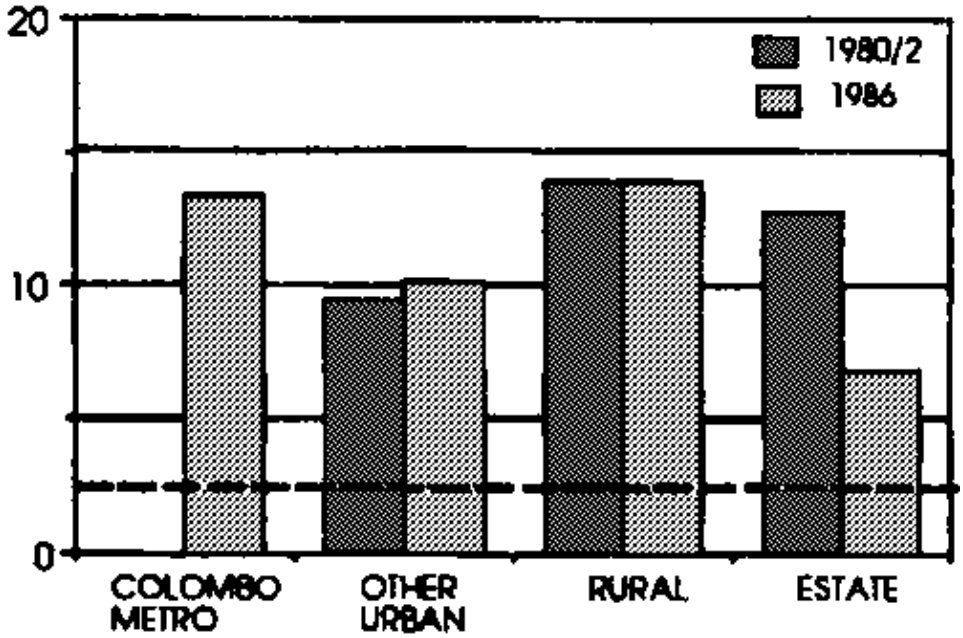


% PREVALENCE – Prevalence of underweight (<75% Wt/Age) in children aged under 6 years. 1978 & '82 (Survey), 1984–87 (National Weighing Programme).

SRI LANKA

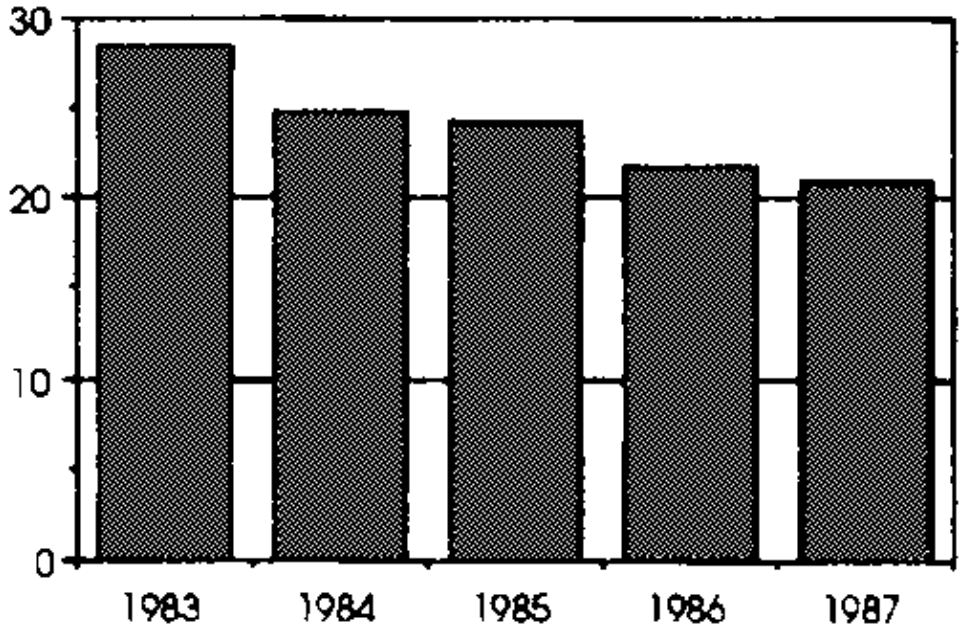


% PREVALENCE – Prevalence of stunting (<–2 S.D. Ht/Age) in children aged: 0–60m (1980). 3–36m (1986). By area.



% PREVALENCE – Prevalence of wasting (<–2 S.D. Wt/Ht) in children aged: 0–60m (1980). 3–36m (1986). By area.

THAILAND



% PREVALENCE – Prevalence of underweight (Wt/Age. Thai Standards) in children aged under 5 years. Gomez Grade I National Weighing Programme.

LATIN AMERICA AND THE CARIBBEAN

Practically all countries in Latin America and the Caribbean experienced a severe economic depression from 1981 to 1984. By 1986–'87 several of them seemed to be stabilizing their economy, and some even improving their situation comparatively (Bolivia, Colombia, Costa Rica, and Uruguay). In addition to the depression caused by the world–wide situation, many of the countries in the region suffered severe natural disasters, political upheavals and civil disturbances. As a result, there has been a general pattern of increased food prices beyond increases in salaries, and there has been a consequent decrease in purchasing power as compared with the previous decade. There is evidence, in some countries, that the gap between food availability and food requirements is increasing, at least in certain population groups.

External Debt

Following a decade of financial liberalism, accompanied by a deterioration in trade and an accelerated growth of the external debt, the Latin America and Caribbean region has been suffering a major crisis. The rise in the debt outstanding and disbursed for 8 LAC countries is shown in figures 12a and 12b. For Bolivia, Costa Rica, Guatemala and Uruguay, the DOD has been steadily rising during the first half of this decade; by 1985 the absolute levels of DOD for these four ranged from US$2 billion to US$3.5 billion. For Chile, Colombia, Peru and Venezuela, the values of DOD were in excess of US$10 billion in 1985. On a per capita basis, Costa Rica and Venezuela have the highest DOD's for this selection with values of just under US$1,400 (see Table 4). Guatemala and Colombia are around one quarter of this figure. Comparing by debt ratio (figs. 13 a & b), it will be seen that Bolivia, Costa Rica, Peru and Uruguay range between 10% and 35% (1985), with Costa Rica the highest. It will be noted that although Peru started the 80's with a comparatively high debt service burden, since 1982 it has been falling and was in 1985 the lowest of the countries shown. Venezuela also shows a downturn in its debt ratio, however the remaining countries show an overall positive trend.

Table 4 – Debt Outstanding and Disbursed on a per capita basis for 1986

(Source: World Development Report 1988, World Bank)

Country	DOD per capita (US$)
Bolivia	533.7
Chile	1,238.4
Colombia	394.0
Costa Rica	1,377.6
Guatemala	266.7
Peru	558.0
Uruguay	919.6
Venezuela	1,375.5

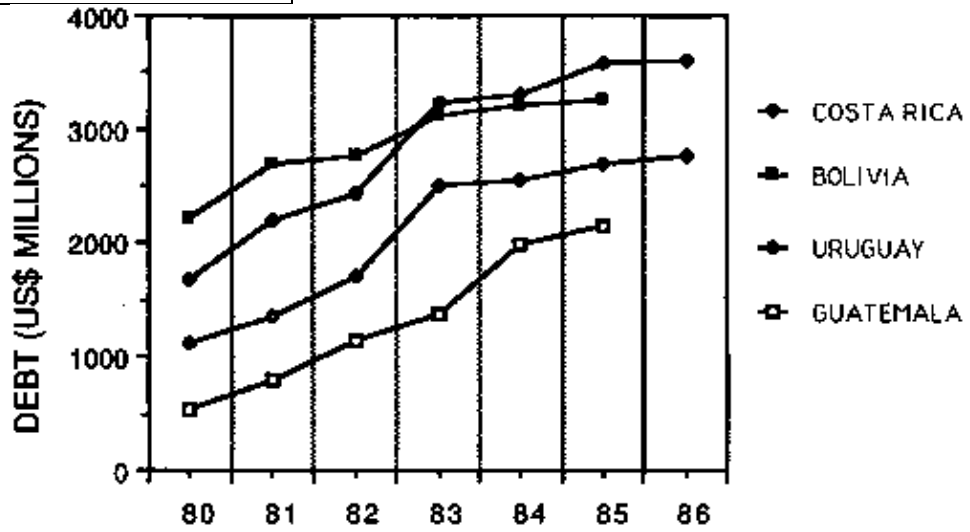


Figure 12 a – Trends in debt outstanding and disbursed for selected LAC countries

(Source: World Debt Tables 1986–87 Edition, World Bank, 1987)

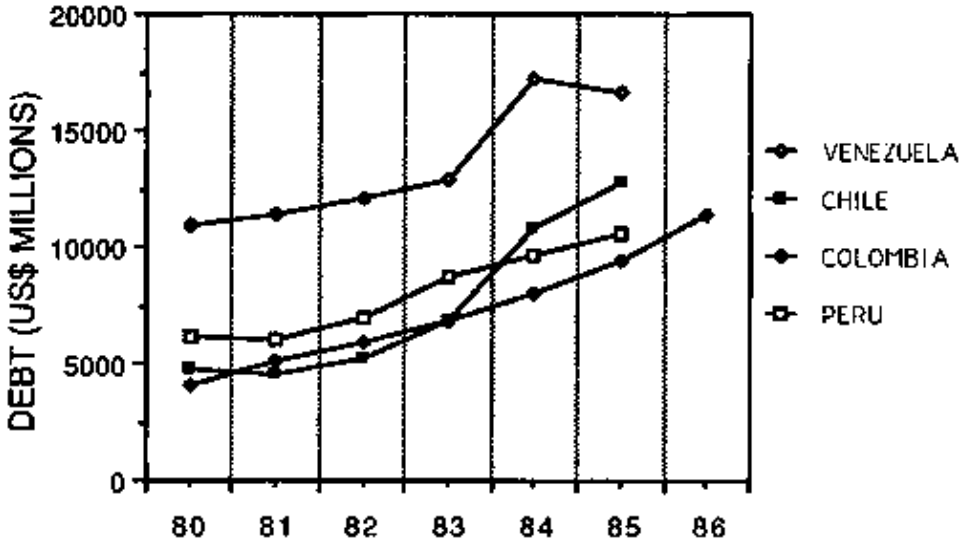


Figure 12 b – Trends in debt outstanding and disbursed for selected LAC countries

(Source: World Debt Tables 1986–87 Edition, World Bank, 1987)

Prices

Bolivia and Peru experienced hyper–inflation during the early eighties (see fig 5 above). Of the remaining countries, Uruguay's general consumer price index had risen by around 2000 points by 1987, while in Chile and Colombia the CPI quadrupled in the same period. Guatemala and Venezuela experienced more 'normal' rates of inflation. The relative price of food (FPI/CPI) showed little consistency across these countries. For Bolivia and Peru – the two countries with hyper–inflation – food prices rose more rapidly than general prices for the former (after 1982) and more slowly for the latter. Guatemala showed a significant shift in the ratio in 1984 after a gradual decline in food prices vis–a–vis consumer prices.

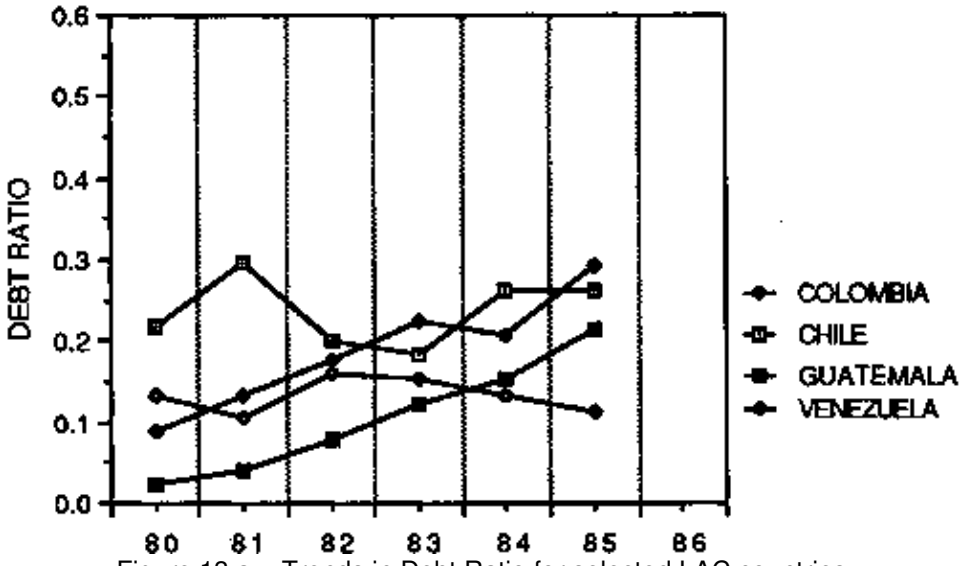


Figure 13 a – Trends in Debt Ratio for selected LAC countries

(Source: World Debt Tables 1986–87 Edition, World Bank, 1987)

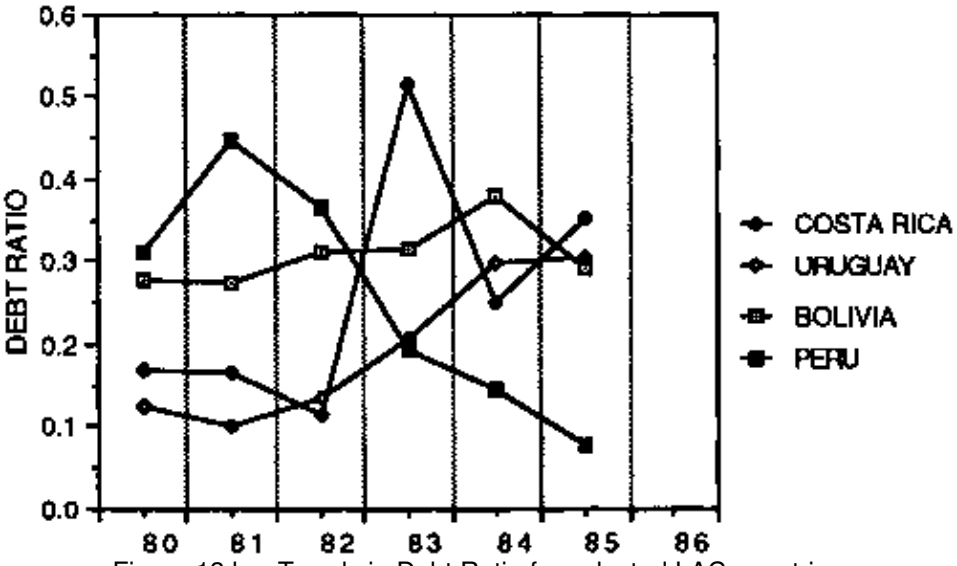


Figure 13 b – Trends in Debt Ratio for selected LAC countries

(Source: World Debt Tables 1986–87 Edition, World Bank, 1987)

Nutrition

The table below (table 5) may be used to provide a general overview of changes in nutritional status of young children across the region. Inter–country comparisons may be misleading in that different data collections methods have been used and different population sub–groups sampled. In the majority of cases the prevalence of underweight has decreased during the comparison period, despite the severe economic conditions prevailing. One should keep in mind that in a number of cases the period between observations is quite short (e.g. Chile) and in others the differences are so small (Jamaica, Cuba and Chile) that they may well be due to chance variations. The data represent national averages and within–country variation is known to be substantial. Table 6 shows the prevalence of low birth weight in several countries in the region. Birth weight is not only a predictor of the future development of the individual child and indirectly a reflection of the nutritional status of the mother, but has been called a social indicator which is associated with general socio–economic, environmental and health conditions. As the available data refers to hospital deliveries it is a biased sample in most of the countries.

Table 5 – Changes in the prevalence of underweight in young children between the 1970's and the '80's.

Country	Year	% Underweight	Year	% Underweight	Classification	Source
Bolivia (La Paz)	1985	23.0	1987	20.1	< –2 SD	HC
Colombia	1977	20.6	1986	11.9	< 3rd cent.	NS
Costa Rica	1966	13.7	1982	5.3	< –2 SD	NS
Chile	1984	2.1	1986	2.4	< –2 SD	HC
Cuba	1984	1.4	1987	0.9	<3rd cent. W/H	HC
Guatemala	1980	43.5	1987	33.5	< –2 SD	NS
Guyana	1974	12.8	1986	10.7	Gomez II+III	HC
Jamaica	1978	7.8	1985	8.0	Gomez II+III	NS
Nicaragua	1966	17.1	1982	27.1	< –2 SD	NS
Peru	1984	9.5	1987	13.2	< –2 SD	HC
Uruguay	1980	13.4	1987	9.3	< 80% median	HC
Venezuela	1982	9.8	1986	7.4	<10th cent. W/H	HC

HC = Health Centre NS = National Survey

(Source: Compiled by PAHO)

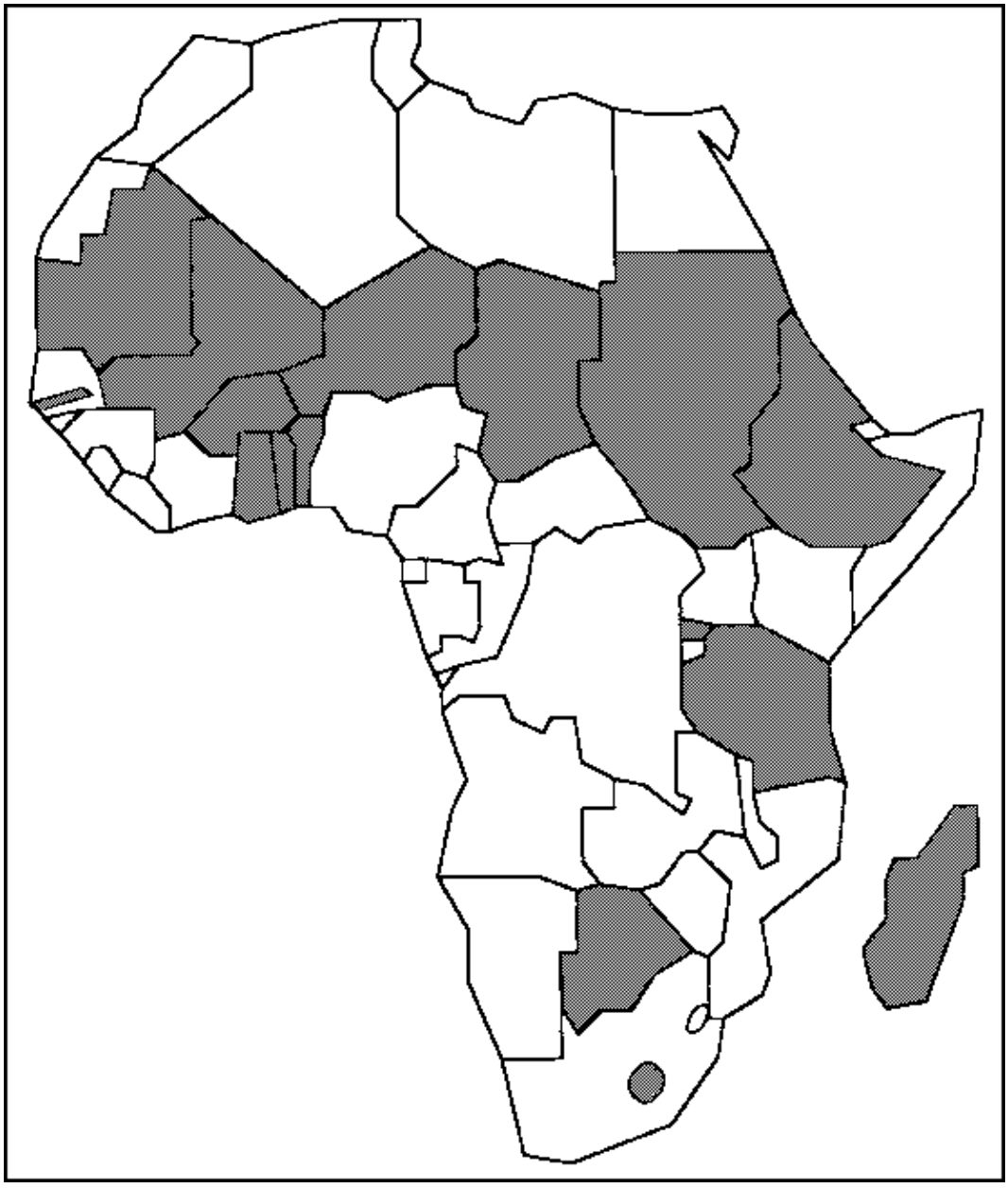
Table 6 – Change in the prevalence of low birth weight during the 70's and '80's

Country	Year	% Under–2.5 kg.	Year	% Under–2.5 kg.
Chile	1984	6.5	1987	6.9
Costa Rica	1976	8.7	1985	6.7
Cuba	1984	7.9	1987	7.9
El Salvador	1980	8.7	1986	8.6
Uruguay	1981	7.9	1985	7.9

(Source: Compiled by PAHO)

3. COUNTRY REPORTS

AFRICA



AFRICA

Benin

The people's Republic of Benin (formerly Dahomey) has an area of 112,622 sq km, with a population estimated at 4.3 million (mid–'87). Over three quarters of these live in the Southern region leading to a locally high – by West African standards –population density of around 120 per sq. km., as compared with 38 per sq. km. nationally. The population is growing annually at a rate of 3.2%. The south of the country has an equatorial climate, while the north is tropical. On average, both north and south have around 1,300 mm of rainfall per year, although the north has a distinct wet season, while in the south the rainfall is more evenly distributed throughout the year.

Until recently, Benin has experienced difficulties in establishing and maintaining a steady rate of development. Factors which contributed to this include north–south divisions, significant underemployment of a well educated and substantial middle class, and a slow rate of growth in the economy. In 1974 the then regime undertook a programme of nationalization. Relations with Western nations, especially France, deteriorated subsequently. However, since the beginning of this decade, the Government has turned more to the West for aid, financial support and investment.

Agriculture

The agriculture sector accounts for 49% of GDP and employs around 64% of the labour force. Normally Benin is reasonably self−sufficient in the production of staples. The latter is supplemented by significant live−stock and fishing industries. However, Benin suffered drought conditions from 1981 through to 1984. This had a considerable impact on the production of food crops (see Food Production Index). Cereal imports rose during this period; cereal aid peaked in 1985 (Cereals: Aid & Imports). Harvests in 1984, '85 and '86 showed a full recovery, although shortages were again felt in 1987 (Food Shortages) after early indications of a good year. Cereal production for 1987 was some 20% less than in 1986 (Cereals) − this was ascribed to badly distributed rains compounded by above normal storage losses. Cereal availability followed the production pattern closely. Food availability (as per capita Kcals, see Kcals per day) shows a marked drop in 1983 following the poor harvests of the two preceding years. Improvements occurred in 1984 as a result of the adequate harvest. Because of the poor maize crop in 1987, FAO reported an urgent need for exceptional food aid in 1988, particularly in the maritime region, which suffered a severe maize shortfall in 1987.

The Economy

The economy has experienced a number of difficult years during this decade, in spite of improving revenues from petroleum in the early eighties. Benin's economic growth is strongly linked with that of neighbouring Nigeria, her major trading partner, both in terms of recorded and unrecorded trade. However, Nigeria has been experiencing an economic recession which depressed Benin's economy. This was further exacerbated by the closure of the border between the two countries for 3 years between 1984 and 1986. GNP (measured in local currency at constant prices) grew by 19% between 1980 and 1986 (GNP), an annual growth rate of just under 3%. The average annual inflation rate for this period was 8.6%. Debt outstanding and disbursed (Debt) and the total debt service as a percentage of exported goods and services (Debt Ratio) have been rising continuously. The latest estimates for the debt ratio is 28.8% (1986), up from 9.2% in 1983. To counteract these trends, the Government announced in 1984 a series of austerity measures. In 1985 discussions began with the IMF. In the same year the exchange rate reversed its long and substantial decline (Exchange Rate). By January 1987 the rate for the CFA Franc[1] had increased by 74% over the Jan. '85 rate. In 1986 Benin requested and obtained a rescheduling of its foreign debt and increased financial aid.

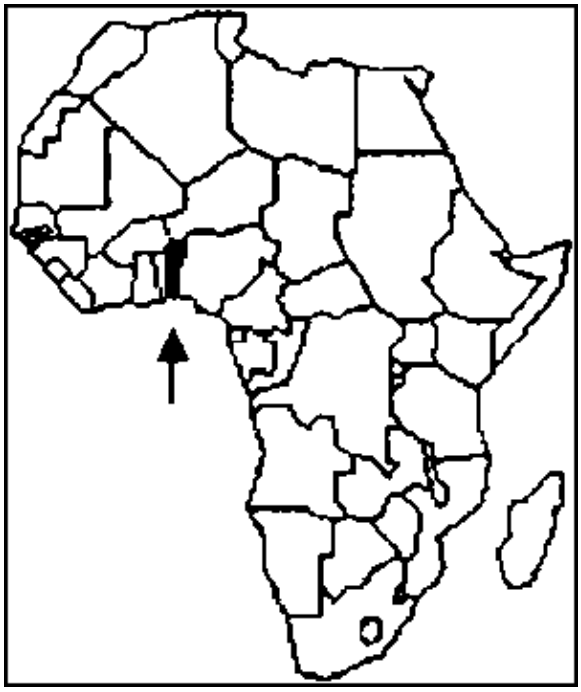
[1] The Communaute Financiere Africaine franc is the common hard currency for most of France−speaking Africa and has been tied to the French franc since 1948.

Nutrition

Health−centre based weight−for−age data on children under five were provided by the Catholic Relief Services/Benin. These data are collected by the Ministry of Labour and Social Affairs in collaboration with CRS. Monthly prevalences of children below 80% reference weight−for−age are graphed from May 1982 to Dec. 1987 (Underweight Children). The de−seasonalized prevalences are also shown. Overall, a trend of gradually declining prevalence of low weight−for−age is evident in these data until mid−'86. Relatively good harvests in late 1984, which were sustained in 1985 and '86, coincide with this decline in prevalence of underweight. However, a sharp rise from 35% to 42% prevalence is seen in the latter half of 1983 through to mid−1984 following prolonged poor food production and availability figures. Prevalence also rose strongly in mid−1986 and continue upwards through to late 1987. This reversal again coincides with poor production and recorded food shortages.

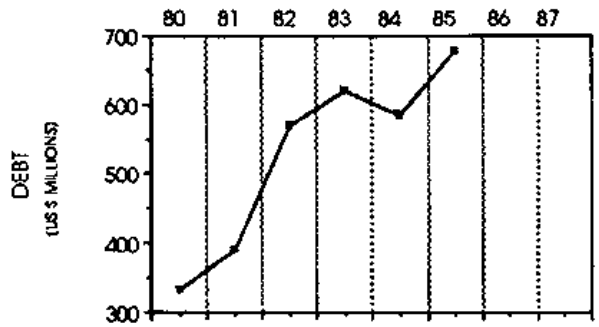
The pattern seen in the national data is repeated − with minor variations − in the regional figures (shown de−seasonalized) which are reproduced (Regional Prevalences). The prevalence data also show a strong seasonal component (Seasonality). The lowest prevalence of under−weight children is generally observed from August−September, which corresponds to the harvest period, while the highest prevalence is usually seen from April−June.

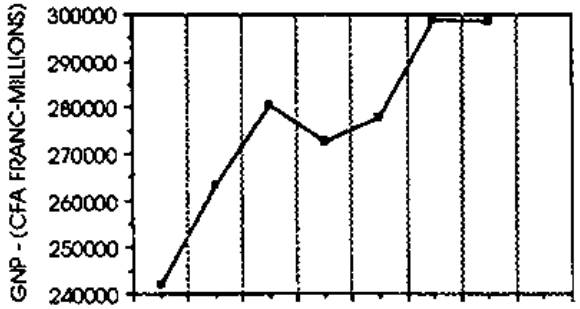
BENIN

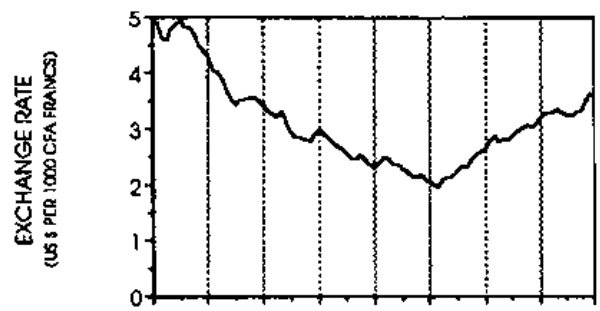


POPULATION: 4.3 M	IMR: 111
POPULATION DENSITY: 38 per sq. km.	U5MR: 188
POP. GROWTH RATE: 3.2% per annum	GNP (PER CAPITA): US$270
PERCENTAGE URBAN POP.: 38%	ESTIMATED PREVALENCE LEVEL UNDERWEIGHT CHILDREN: 20% – 30%

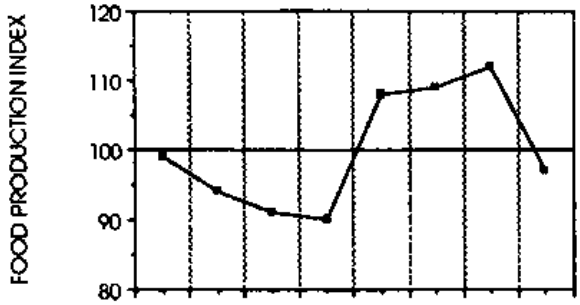
ECONOMIC INDICATORS

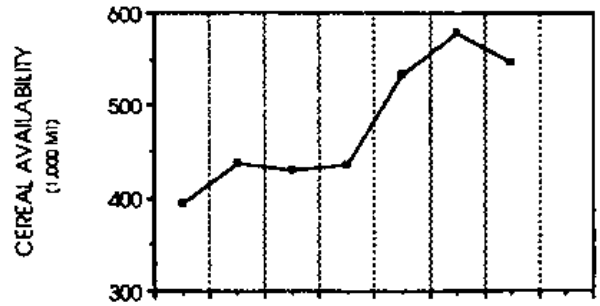


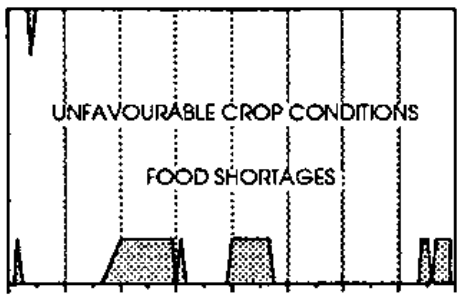


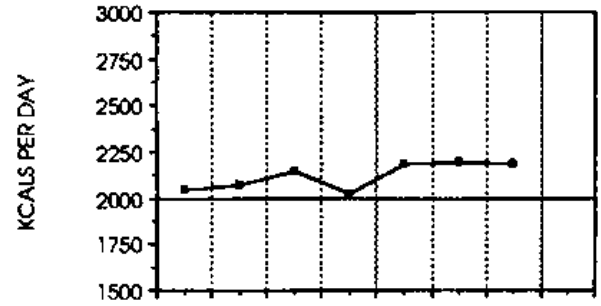


FOOD INDICATORS





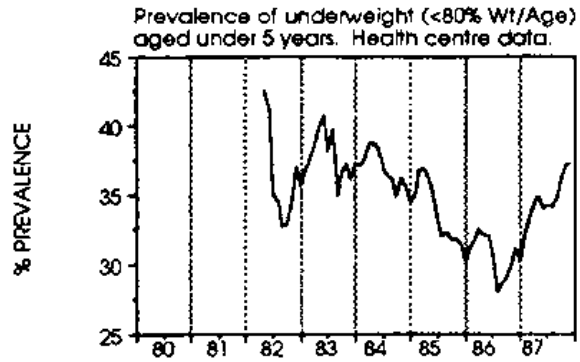


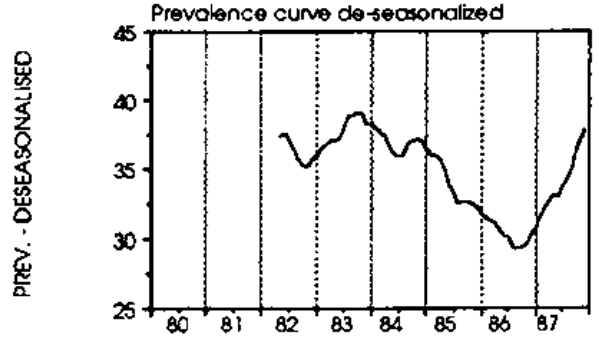


CPI NOT AVAILABLE

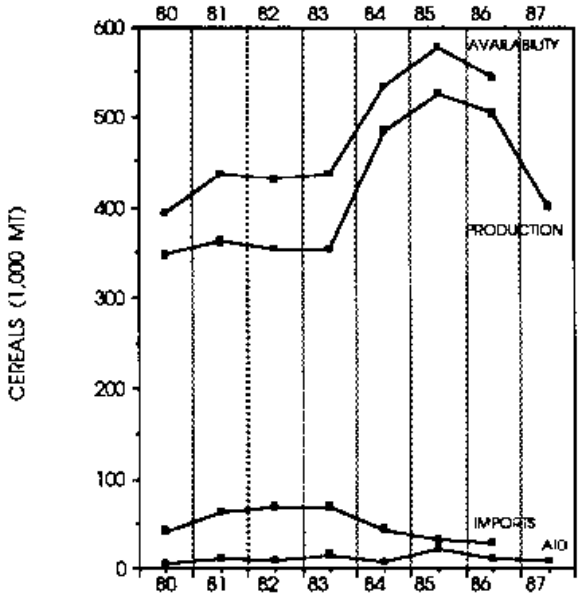
FPI/CPI NOT AVAILABLE

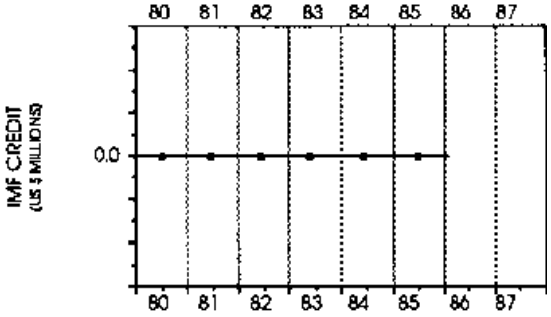
TRENDS IN UNDERWEIGHT CHILDREN





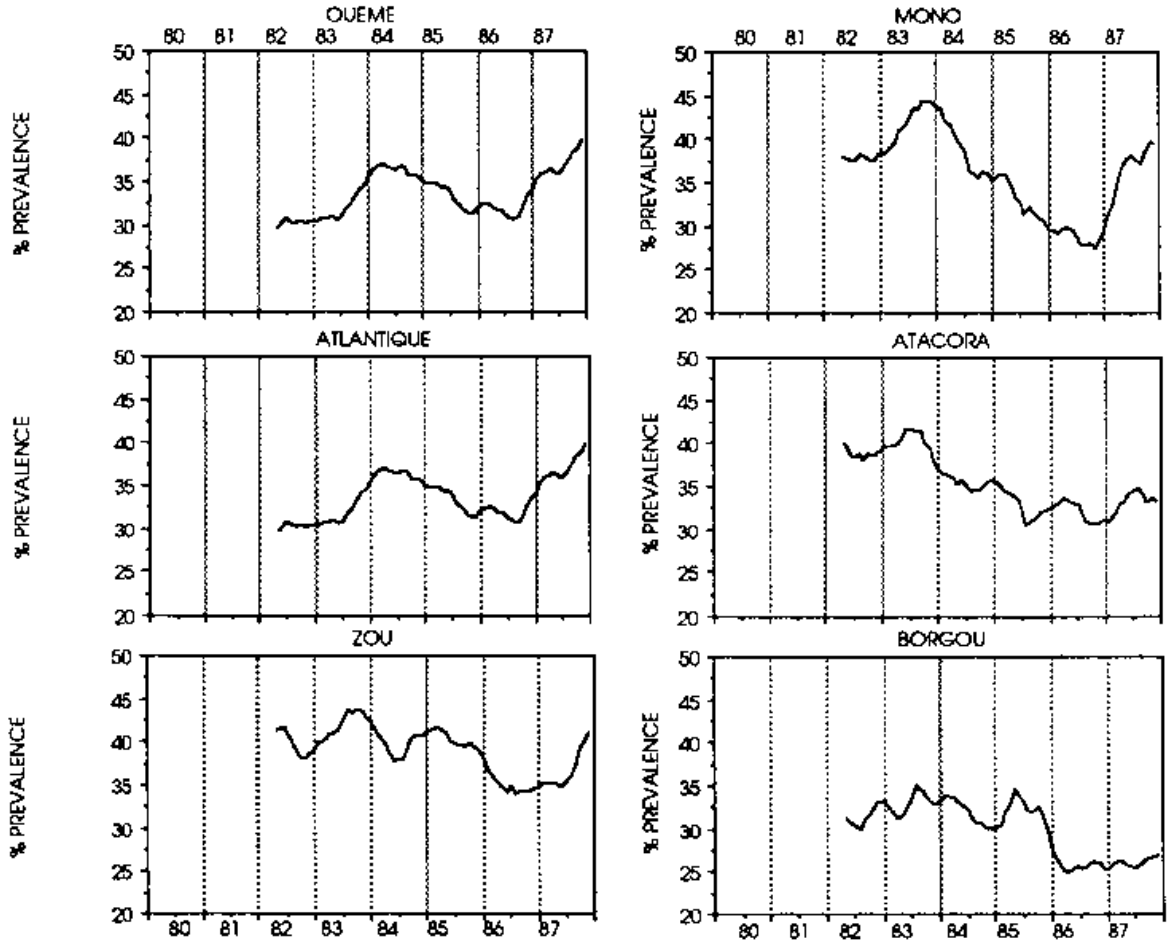
ADDITIONAL FOOD & ECONOMIC INDICATORS





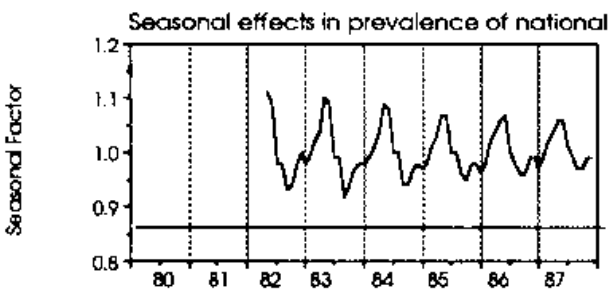
TRENDS IN REGIONAL PREVALENCE

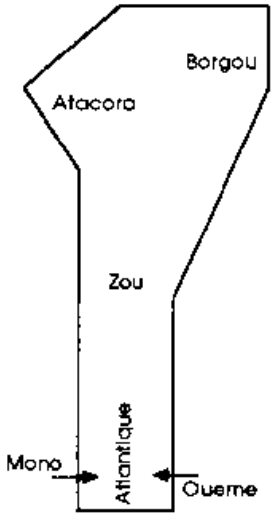
Prevalence of underweight (<80%Wt/Age) children aged under 5 years by region. Health centre data.



SEASONALITY

Seasonal effects in prevalence of national data





Botswana

Botswana's food and nutrition situation is unusual in many respects. With normal rainfall (which has been rare recently) only about one quarter of staple food needs can be met from domestic production. In fact, livestock accounts for much more rural income than cropping agriculture. Secondly, Botswana's economic growth had been particularly rapid until the 1980's. Foreign exchange from diamond production, and beef to a lesser extent, allows substantial cereal imports to meet domestic needs; recently this has been supplemented by food aid. But even more important perhaps, organization of rural programmes to provide income and food distribution is exceptionally effective. Among these is a widespread system of nutritional surveillance, based on weights of pre−school children attending clinics.

Before 1988, there were six consecutive years of severe drought. The previous "normal" pattern of rainfall and production was in 1980−81. Prevalences of underweight children (see Underweight Children) show the seasonal pattern for 1980−81, increasing towards the end of the year (by around 5 percentage points), then falling again after the harvest around March−April. With the onset of drought in 1982, the pattern changed, seasonality largely disappearing with a slight upward trend in prevalence through 1984 − seen also in the de−seasonalized plot (Prev. De−seasonalized). These data, derived from health centres, are particularly subject to changing coverage, since attendance rates rise sharply in times of drought because of food distribution through the health system.

The reporting system was modified at the end of 1984, and the data must (at present) be treated as a discontinuous series. It is almost certain that malnutrition did not rise between 1984−85, but at least part of the apparent fall is related to the reporting change.

From 1985 through 1987, therefore, malnutrition probably fell slightly, despite the drought − a result of the effective relief measures. Overall, there is little doubt that a major crisis was averted, and hunger and malnutrition in many of the rural areas contained.

The effects of the drought can be judged indirectly from the food production index (Food Production Index) − which includes estimates from livestock and from total cereal production (Cereals: Production). The drought struck in 1982; cereal production, for example, declined from nearly 50,000 MT in 1982 to only 6,000 MT in 1984. The numbers of head of cattle was reported to fall by about a quarter, from around 3 million to about 2.2 million, between 1982 and 86−87. Cereal imports and food aid increased over the next two years, so that by 1984 total cereal availability and calorie availability (from food balance sheet data) were in fact higher than before the drought. The relative cost of food (FPI/CPI) increased from 1980, but was largely stabilized by 1984.

Since 1983 the reported annual (and monthly, for Lobatse Region) incidence of measles had been rising; these peaked in 1984 and declined thereafter.

Restoring the overall availability of food in the face of drought was only part of the battle. Access to food in rural areas was also tackled through compensating for income loss by labour−based relief programmes and food distribution. It was estimated that in 1985/86 nearly 700,000 people (of a population of around 1.2 million) benefited from the drought feeding programme, and some 74,000 workers participated in labour based relief. The equivalent of nearly $40 per head of beneficiary, for all the 1985−86 drought relief programmes, was spent, split about equally between government and donors[1]. The success of this effort is no doubt reflected in the malnutrition figures.

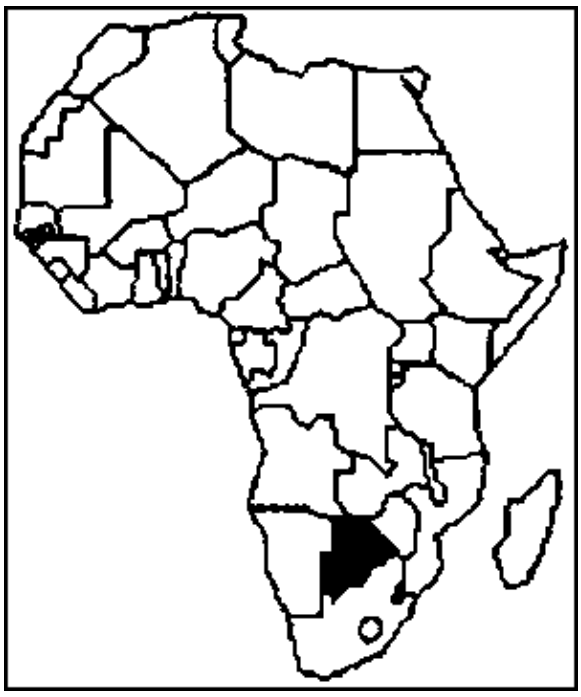
> [1] Quinn, V., Cohen, M., Mason, J., Kgosidintsi, B.N., 1988. "Crisis−proofing the Economy: The Response of Botswana to Economic Recession and Drought", In: Cornia et al (Eds.) "Adjustment with a Human Face, Volume 2: Ten Country Case Studies", Oxford University Press, 1988.

The six consecutive years of drought were finally relieved in early 1988, when "widespread and above normal" rains were reported. The cereal harvest, almost complete by June, was estimated in 58,000 MT − the best in the '80's. FAO estimated that food aid requirements remained high −at 171% of normal − to meet feeding programmes and drought relief. Overall food supply was satisfactory, although localized shortages caused by

flood damage were reported in eastern areas.

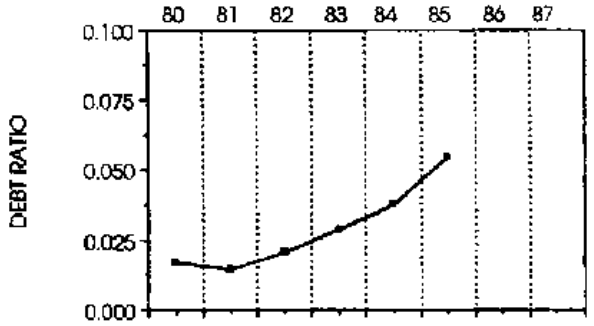
Reports of prevalence of underweight for the 1st. quarter of 1988 are: 15%, 14% and 14%, for Jan. to March, respectively.

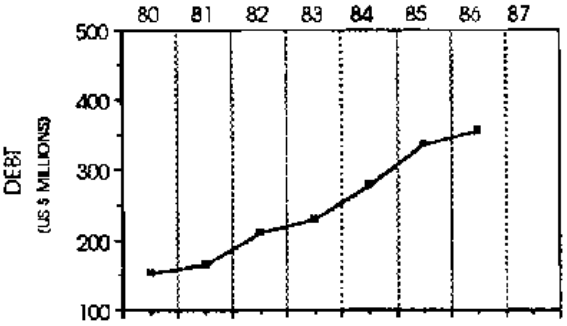
BOTSWANA

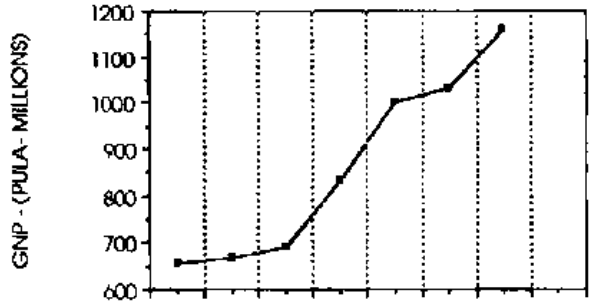


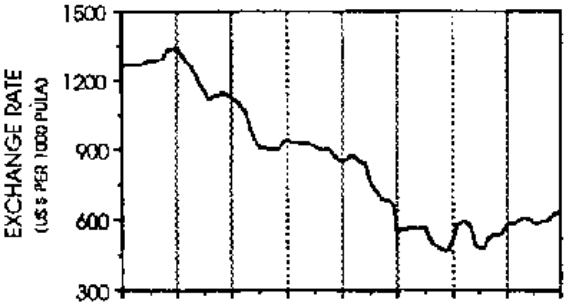
POPULATION: 1.2 M	IMR: 68
POPULATION DENSITY: 2 per sq. km.	U5MR: 95
POP. GROWTH RATE: 3.5 per annum	GNP (PER CAPITA): US$840
PERCENTAGE URBAN POP.: 21%	ESTIMATED PREVALENCE LEVEL UNDERWEIGHT CHILDREN: 20% – 30%

ECONOMIC INDICATORS

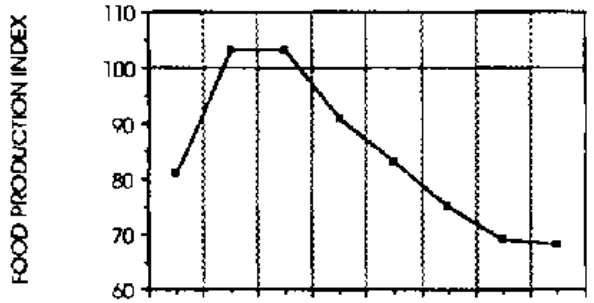


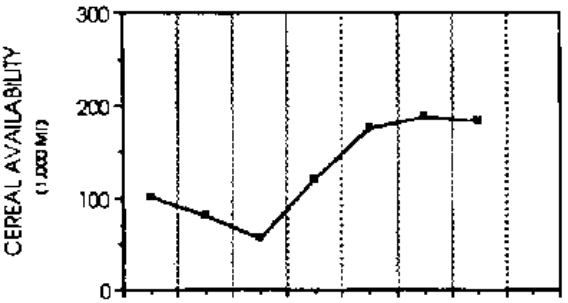


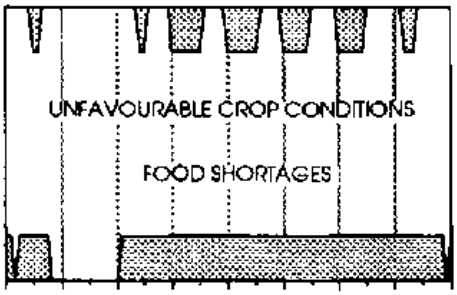


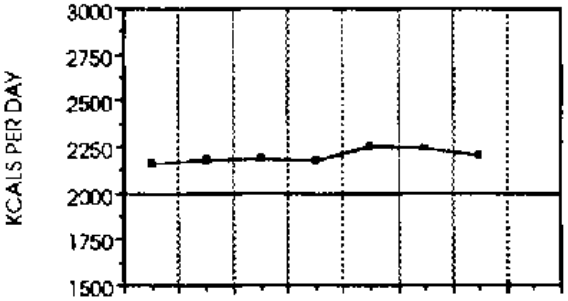


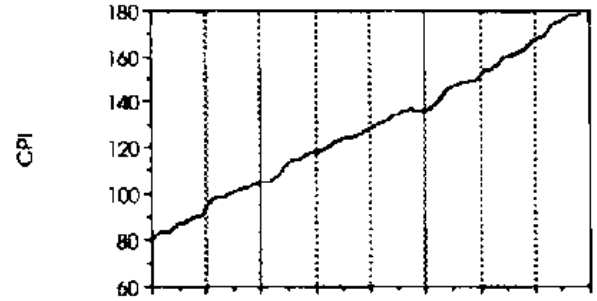
FOOD INDICATORS

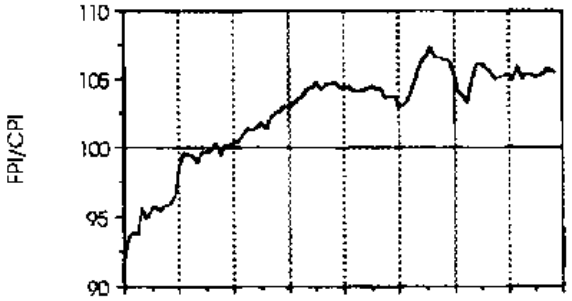






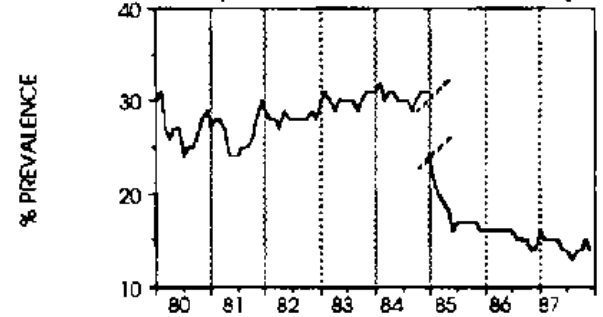




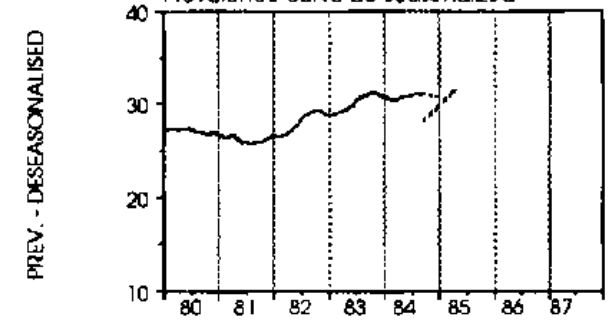


TRENDS IN UNDERWEIGHT CHILDREN

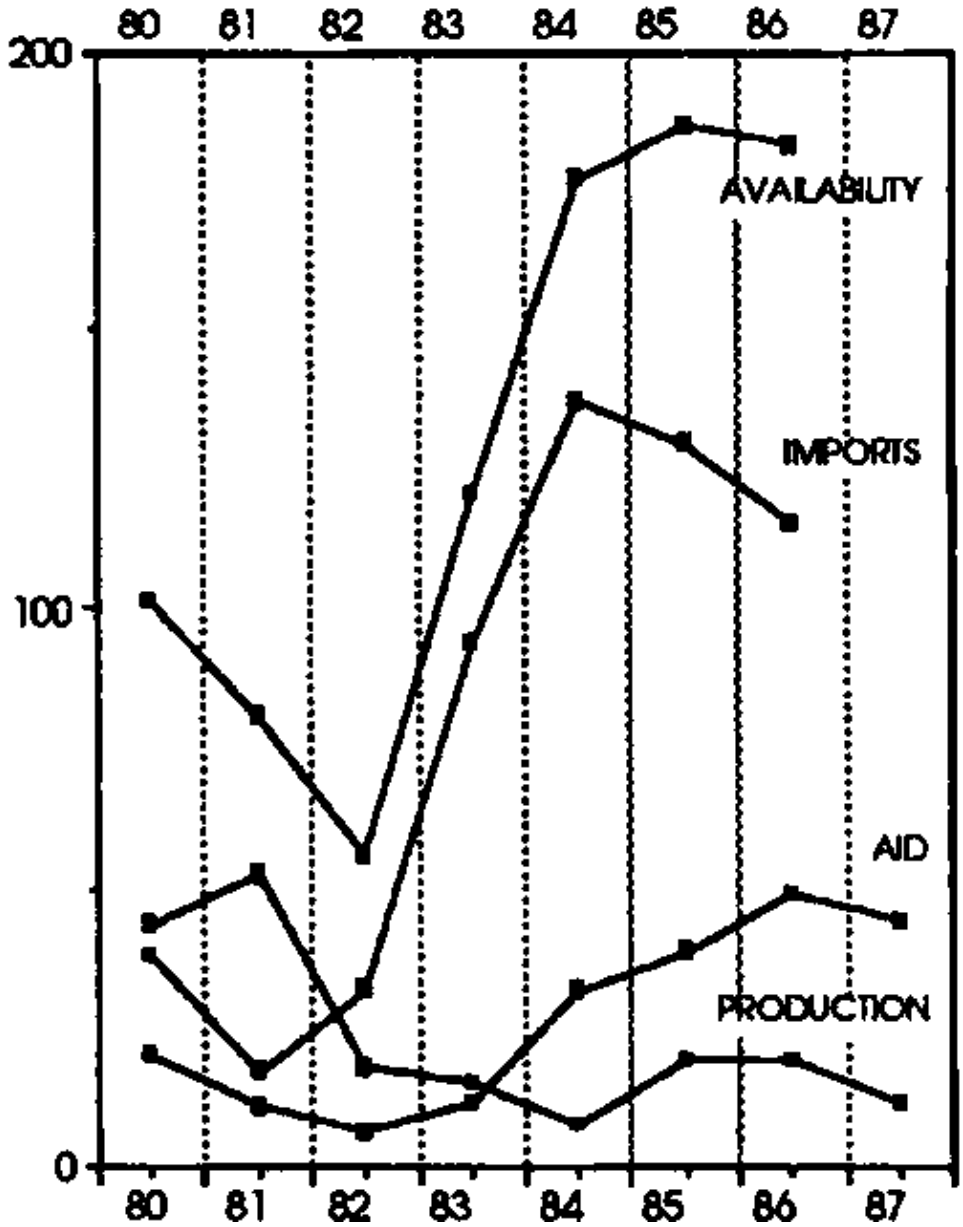
Prevalence of underweight (<80% Wt/Age) children aged under 5 years. Nutritional Surveillance Programme data.



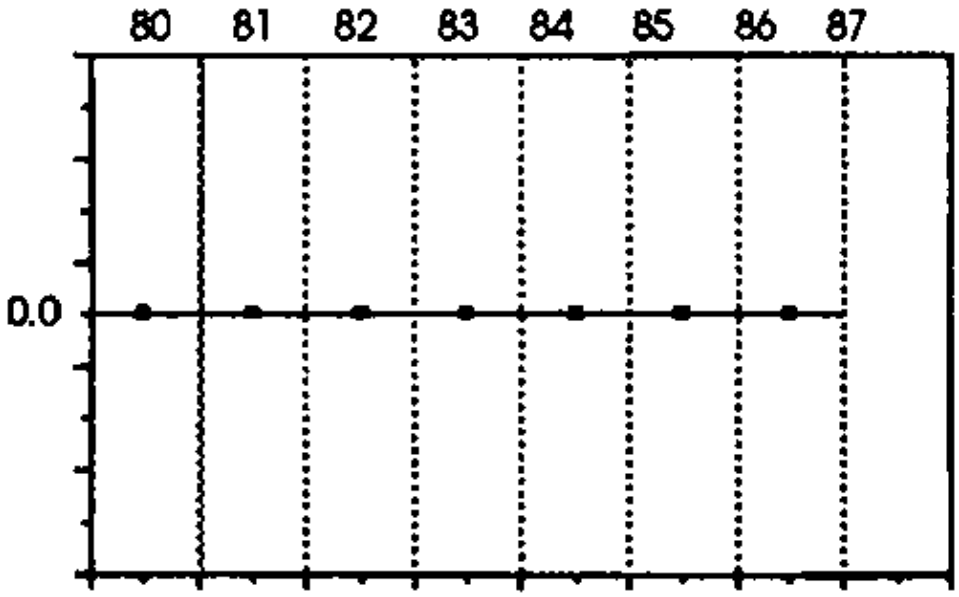
Prevalence curve de-seasonalized



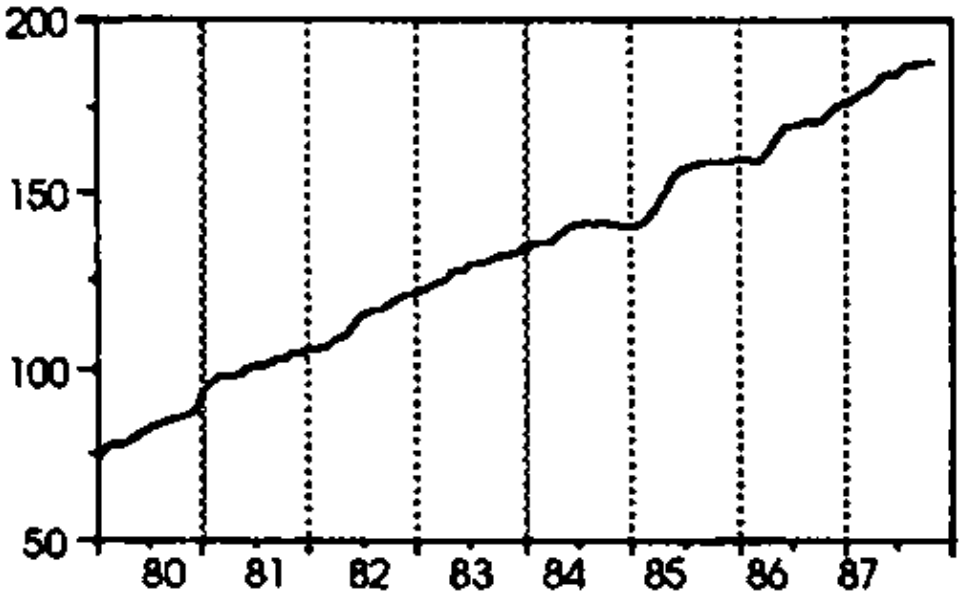
ADDITIONAL FOOD & ECONOMIC INDICATORS



CEREALS (1,000 MT)

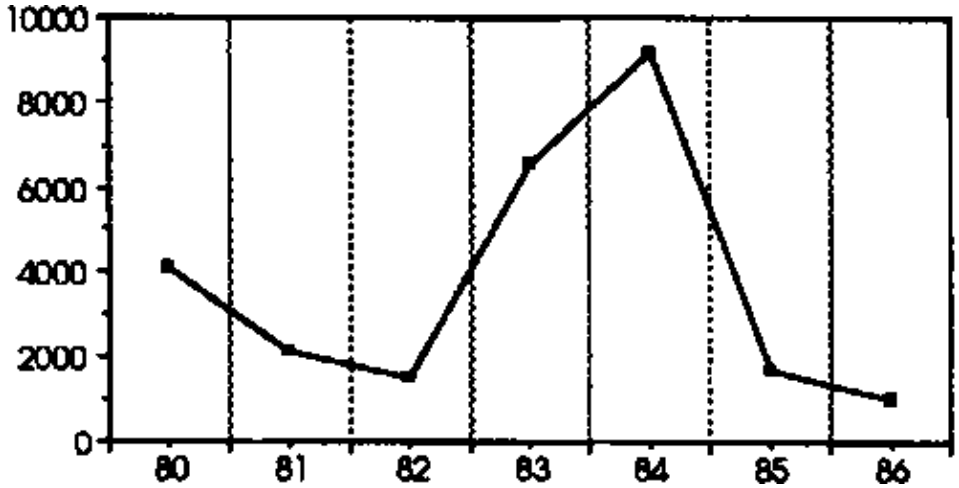


IMF CREDIT – (US $ MILLIONS)

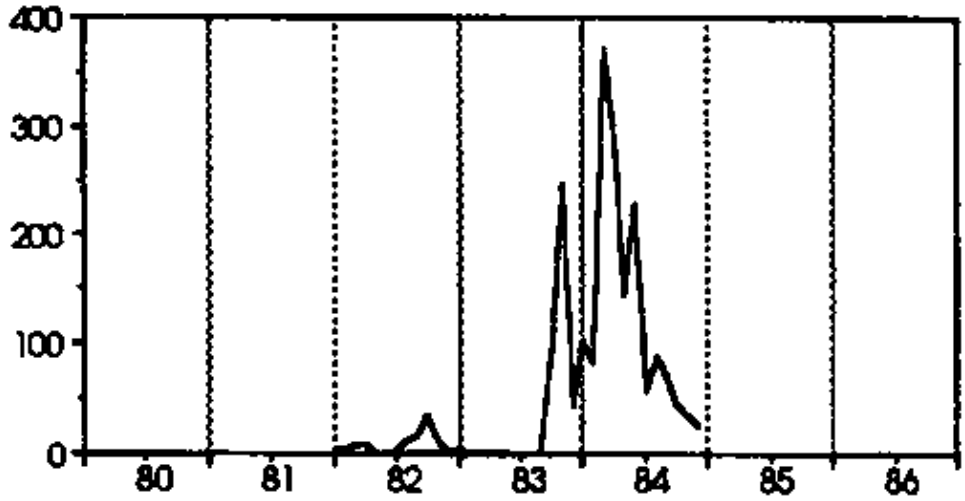


FPI

MEASLES



NUMBER OF CASES – Reported annual incidence of measles nationally



NUMBER OF CASES – Reported monthly incidence of measles in Lobatse Region

Burkina Faso

Burkina Faso (before August 1984, Upper Volta) is one of the poorest countries in the world. It is ranked third lowest in a list of 129 countries compiled by the World Bank on the basis of their per capita GNP. Annual rainfall is low at between 600 and 1,100 mm. The total land area is 274,000 sq. km., of which only around 10% may be cultivated.

More than 85% of the working population depend on agriculture for their livelihood. This sector contributes nearly 45% of GDP. The northern part of the country is ecologically Sahel (the country as a whole is included in the Sahel group) and Burkina Faso has experienced the recurrent droughts that affect this region of Sub–Saharan Africa. Thus, the droughts of 1968–74 caused widespread destitution, particularly from livestock losses for the population depending on animal husbandry. Normal rainfall returned in 1975/6 and led to a recovery which lasted for a few years. But rainfall became erratic again in 1981. In 1983 the rains were late and harvests were again reduced (see Food Production Index and Cereals). Neither imports nor food aid could increase fast enough, and consequently the estimated food available fell from 2019 kcals/caput/day in 1982 to 1952 kcals in 1983 (Kcals per day). The seasonal peak of child malnutrition was more pronounced in 1983, and did not fall to the previous year's post–harvest low (Underweight Children); the raised level of malnutrition lasted for 2–3 years.

In 1984 the rains were worse, particularly in the drier northern areas. Reported measles incidence peaked (Measles). Crop production was somewhat lower than even 1983, and food availability (Kcals per day) fell further, despite an increase in imports. Food aid had not yet built up. Food prices increased by 20% (FPI). Malnutrition prevalences (as % Wt/Age) recorded by health centres remained at the 1983 level overall. Holding the prevalences down to 1983 levels in clinics may have been helped by effective food distribution.

By May 1985, it was reported that some 1.5 million of the population were affected by famine. By late 1985 more food aid and imports was arriving in quantity (Cereals). Rainfall was better in 1985, and food production from the harvest in September–November was 40–45% higher than the previous two years. Total cereal availability for 1985 increased sharply. Food balance sheet calculations indicate that kcal availability was restored to pre–drought (e.g. 1981) levels, around 2200 kcals. Prevalences of underweight children remained high (perhaps related by this time to longer–term effects on children –stunting), but began to fall by the beginning of 1986 (Prev. De–seasonalized). Underweight prevalences here closely reflected food prices (FPI) at national average level.

Following the good harvest in 1985, underweight prevalences in 1986 fell to the lowest level on average since 1982 (when data started to be available). But dry conditions continued in the North, where no recovery in nutritional status was seen. Average food prices, absolute (FPI) and relative (FPI/CPI) also came down after the 1985 harvest. It is notable that the reported annual incidence of measles rose continuously between 1980 and 1984, but fell in 1985 (Measles).

Rains were even more favourable in 1986, and a record harvest was produced, better than 1985 – but again the north was dry. The post–harvest (September) prevalence of underweight children dropped to 41%, the lowest level since these data began to be recorded.

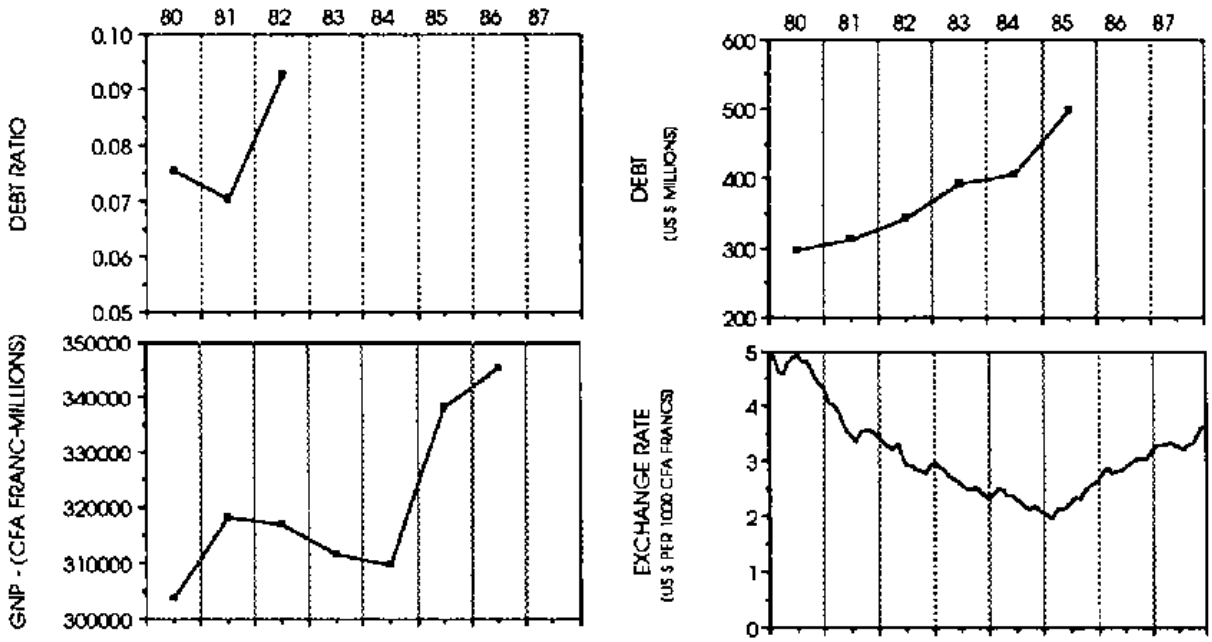
In 1987 rainfall was normal for most of the country. The north however was still suffering from drought. Villages were reported to have been abandoned, and pasture non−existent in some areas. Surplus food from the two good harvests of '84 and '85 were causing storage problems in the south and centre, but by December 1987 food prices were reported rising in the north, which continued into April 1988. Disaggregated figures for three northern centres for 1985 through 1987 are shown (Regional Prevalence) with the seasonal precipitation levels. Seno is in the Sahelian Zone and has the lowest rainfall and the highest prevalence of underweight children. In Yatenga and Mou Houn the prevalences are stable or rising slightly between '85 and '87. Seno, starting around 40 percentage points higher, begins to drop in the latter half of '85 and continues downward until the 1st. quarter of '87.

The nutrition situation seems to show increasing differences between the north and elsewhere, and the prospect is for this to get worse. The south and centre appear to show a stable underlying trend, with a marked seasonal pattern. FAO reported (October 1988) that heavy rains had exacerbated the transport of food to the deficit area in the north, where there are indications that malnutrition prevalences are already exceptionally high.

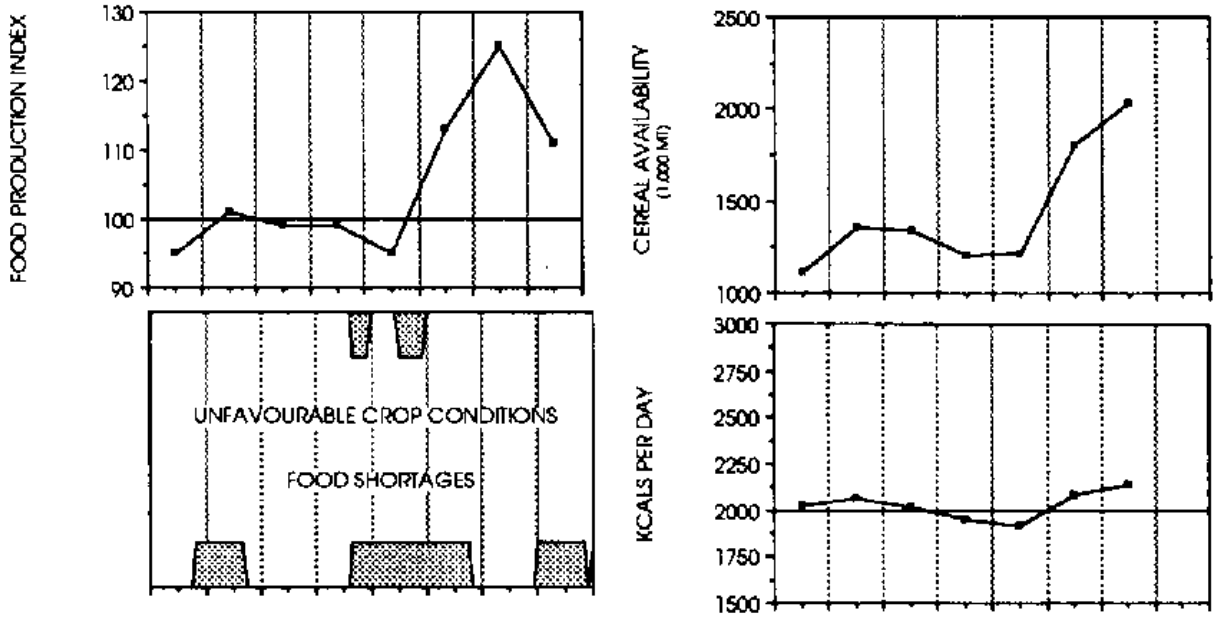
BURKINA FASO

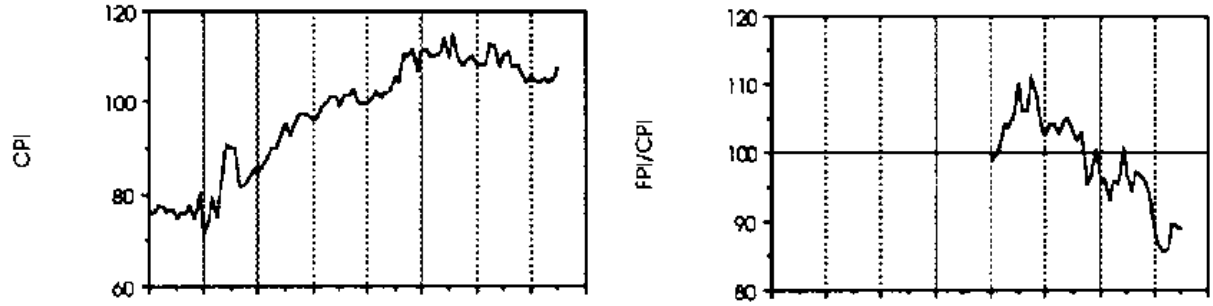
POPULATION: 8.3 M	IMR: 139
POPULATION DENSITY: 30 per sq. km.	U5MR: 237
POP. GROWTH RATE: 2.5% per annum	GNP (PER CAPITA): US$150
PERCENTAGE URBAN POP.: 8%	ESTIMATED PREVALENCE LEVEL UNDERWEIGHT CHILDREN: 20% – 30%

ECONOMIC INDICATORS

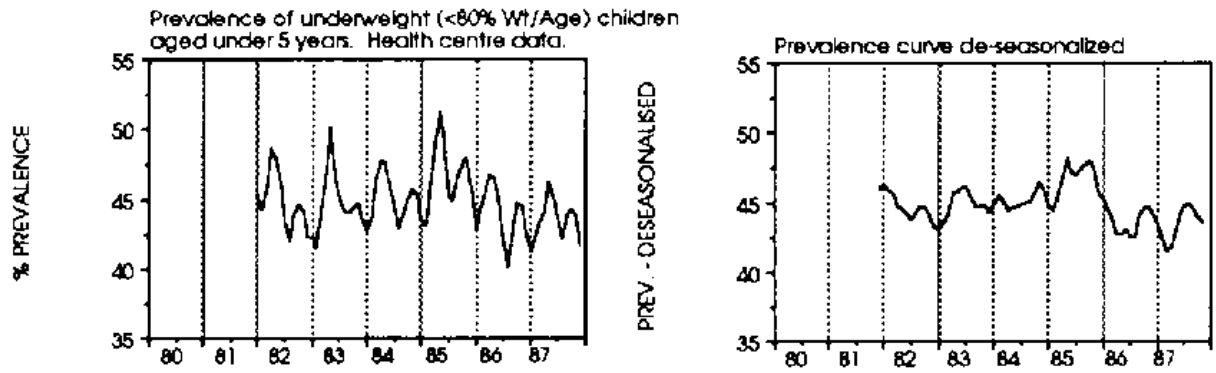


FOOD INDICATORS

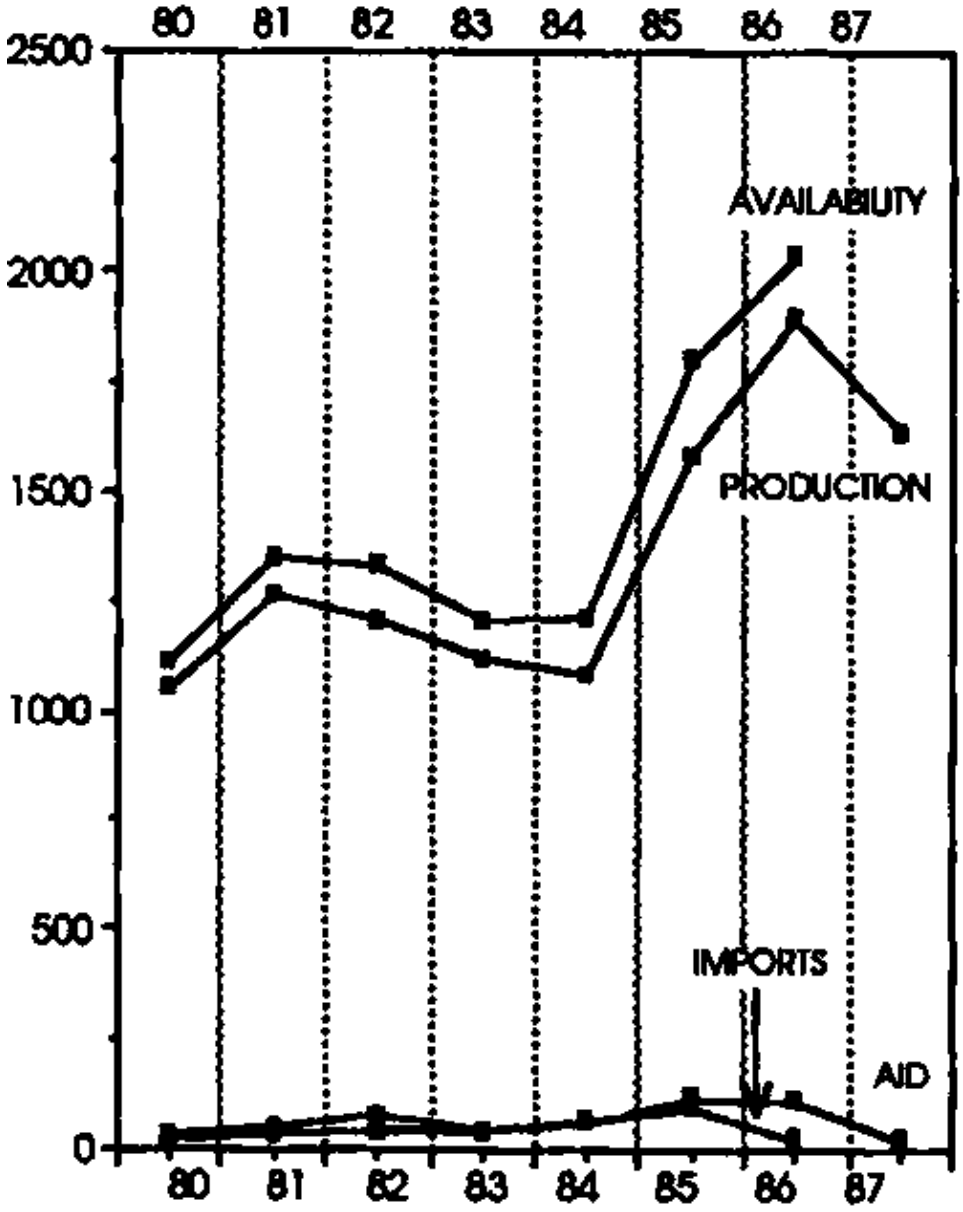




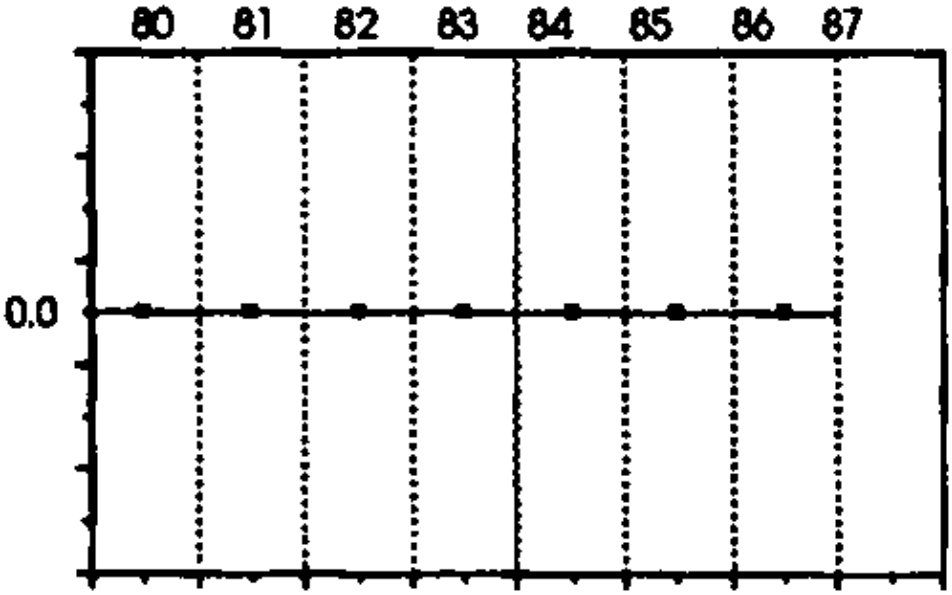
TRENDS IN UNDERWEIGHT CHILDREN



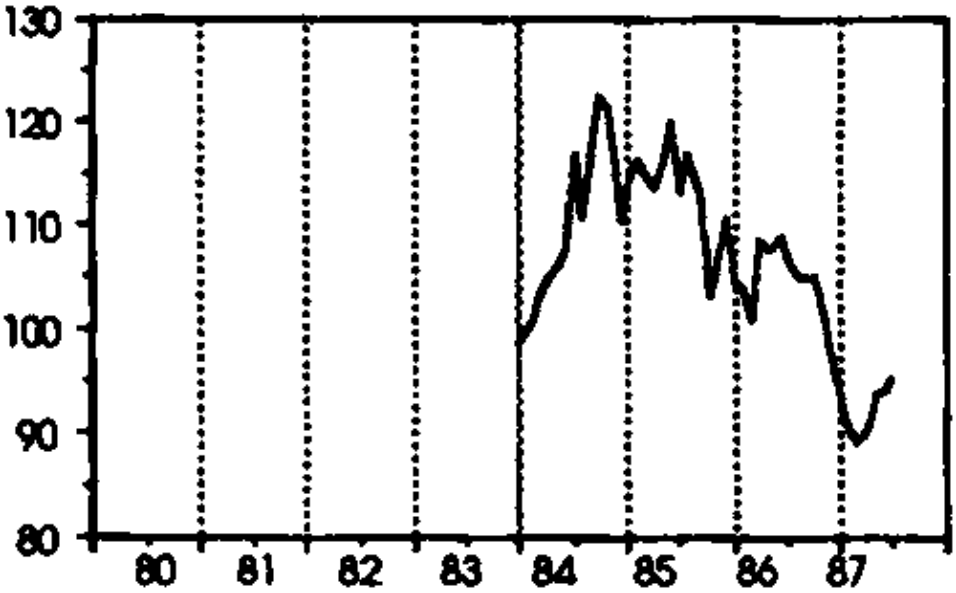
ADDITIONAL FOOD & ECONOMIC INDICATORS



CEREALS (1,000 MT)



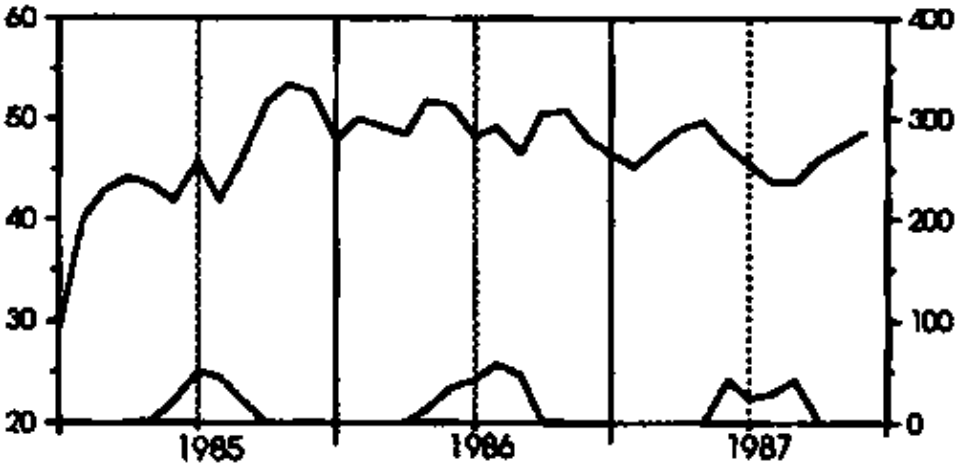
IMF CREDIT – (US $ MILLIONS)



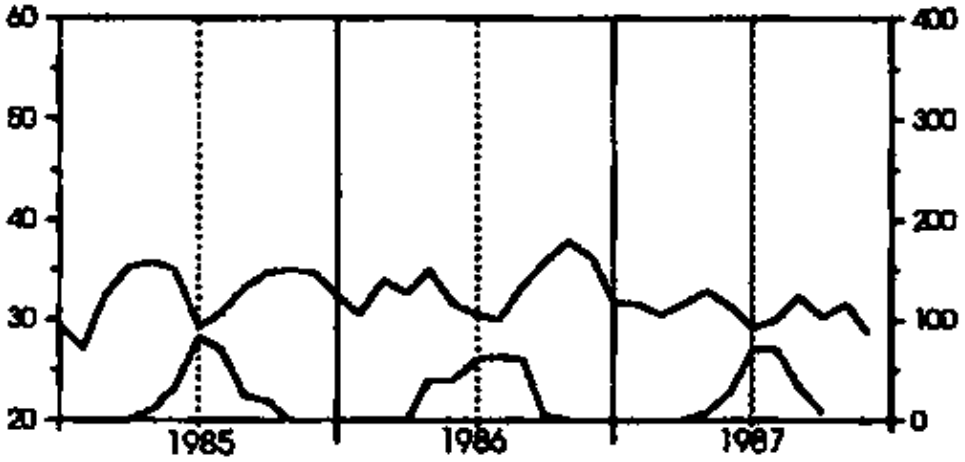
FPI

REGIONAL TRENDS IN PREVALENCE & PRECIPITATION

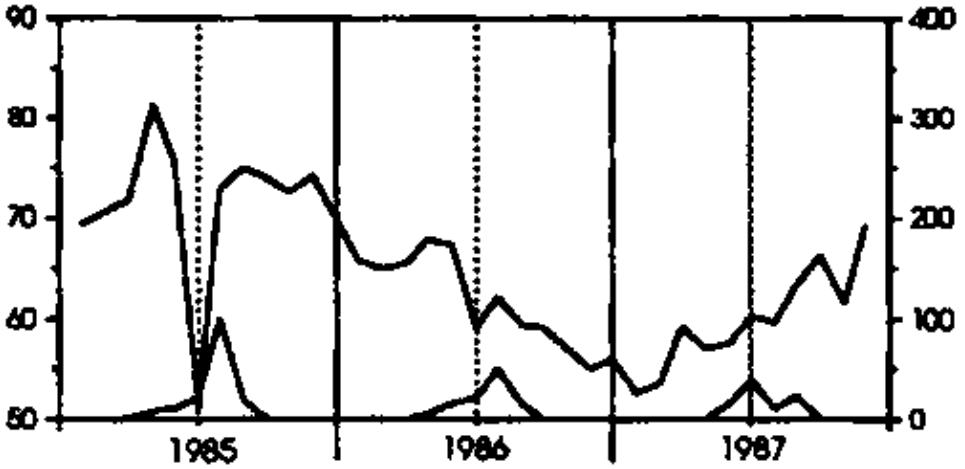
Prevalence of underweight (<80% Wt/Age) children aged under 5 years by region. Health centre data. Average levels of precipitation are also shown.



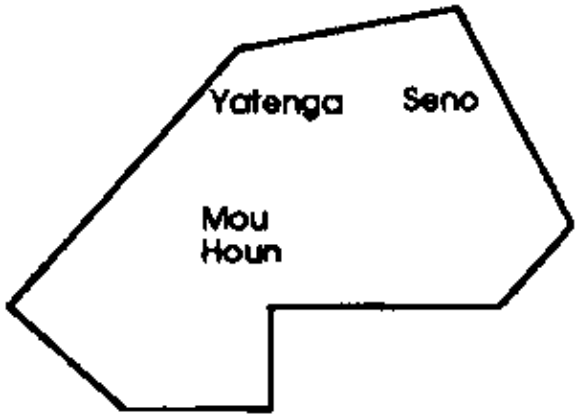
% PREVALENCE – YATENGA – PRECIPITATION (mm) – MEAN PER 10 DAYS



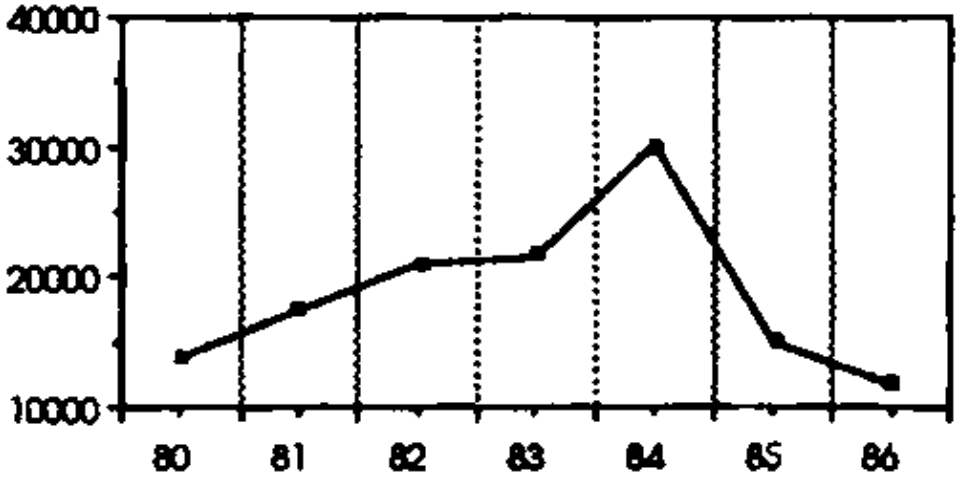
% PREVALENCE – MOU HOUN – PRECIPITATION (mm) – MEAN PER 10 DAYS



% PREVALENCE – SENO – PRECIPITATION (mm) – MEAN PER 10 DAYS



MEASLES



NUMBER OF CASES – Reported annual incidence of Measles

Chad

Chad is large and sparsely populated. The land area is in excess of 1.28 million sq. km. Estimated for 1987, the population is just over 5.3 million. The average population density is therefore only 4 per sq. km., although the bulk of the population is concentrated in the south of the country. Ecologically, the country may be divided into 3 zones. The South is the richest in agricultural production terms and produces the main cash crops of cotton and groundnuts. Average rainfall increases from 500 mm to 1200 mm per annum from north to south. The Middle zone is mainly pastoral and has a rainfall gradient of 250 mm to 500 mm, north to south. This is part of the Sahel Region of Africa which has been severely affected by drought since the early 70's. The North has less that 25 mm of rain annually and is largely desert. The natural difficulties faced by Chad have been exacerbated by civil war and persistent drought.

Chad became independent in 1960, but remains one of the least developed states in Africa. A North–South divide, based on cultural, religious and economic grounds, has given rise to a prolonged civil war which has been ruinous to an already strained economy. The northern territories were occupied by Libya for over 4 years until 1987.

Agriculture

Crop farming and nomadic cattle–raising represent the major contributions to GDP. Between 1980 and 1984, domestic production supplied between 70% – 80% of the country's food needs (see Food Production Index & Cereals). Cereal imports and cereal aid have been increasing steadily through this period (Cereals). Nevertheless, cereal availability (Cereal Availability) and per capita calorie availability (Kcals per day) indicate the extent of the problem during the drought, until 1985 (Food Shortages). The harvest in 1985 was adequate and improved further in 1986 to produce a record crop. Due to poor growing conditions in the north, 1987 saw an overall fall off in production over the 1986 figures resulting in national food shortages (Cereals). Fortunately, substantial residual stocks existed in the south and so cereal availability was reported as remaining high for 1987. On average therefore, the 1987 per capita food availability figure was comparable with that for 1986.

The Economy

Fluctuating world prices for cotton, the civil war and drought have seriously affected Chad's economy. GNP declined sharply between 1981 and 1984 (GNP). Following a chronic trade deficit in the 1970's, there was an improvement at the beginning of this decade which continued until 1985/'86. The public debt was reduced as the result of major loans taking the form of grant aid (Debt & Debt Ratio). Cotton – which accounts for around 75% of export earnings – underwent considerable price changes during the early eighties and this is reflected in the ratio of debt to exported goods and services (Debt Ratio). The trade deficit rose again during 1986 as cotton prices were depressed. The exchange rate (US$ per CFA Franc) as with the other members of the Franc Zone, reversed its long and substantial decline in 1985 (Exchange Rate).

In addition to sizable amounts of emergency food aid during the drought period, Chad also received substantial financial aid – on average $114 million per year. In more recent years aid has exceeded the value

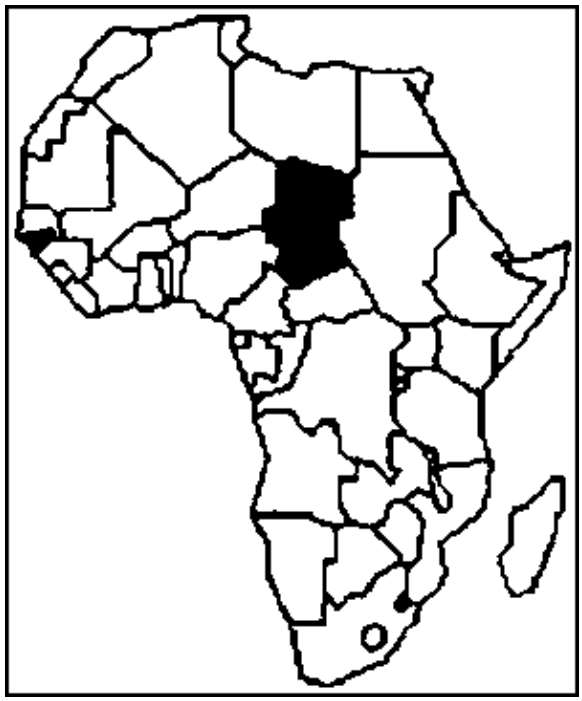
of total export earnings and grown to a substantial percentage of GDP. In late 1985 pledges were obtained from several donor countries and development agencies, including $100 million from the World Bank and $50 from the African Development Bank, in support of the 1986–1990 Development Programme. Further discussions took place with international financial institutions and donors in late 1986 which resulted in an agreement to hold the budget deficit down, reduce spending and to increase taxes.

Nutrition

Nutritional data are largely unavailable for Chad. One exception relates to a survey conducted by Guha–Sapir, Lechat, and Phambu ('Risk Factors and Vulnerability of Children to Drought Related Famines', unpublished report, personal communication) during October 1985 when the population had begun to recover from the main effects of the famine which ended in late 1984. The study covered children under 5 years of age in selected areas of the province of Batha. Sampling was designed to include pastoralists as well as established local village settlements. The prevalence of less than 80% reference weight–for–height was recorded as 12.2% across all groups, with slight differences between the displaced and non–displaced populations (Additional Nutrition–Related Indicators). Guha–Sapir et al. report on significant differences in prevalence of wasting between the various ethnic groups with percentages ranging from a low of 5.3% (for the Miseri Noir) to a high of 15.7% for the Arabe.

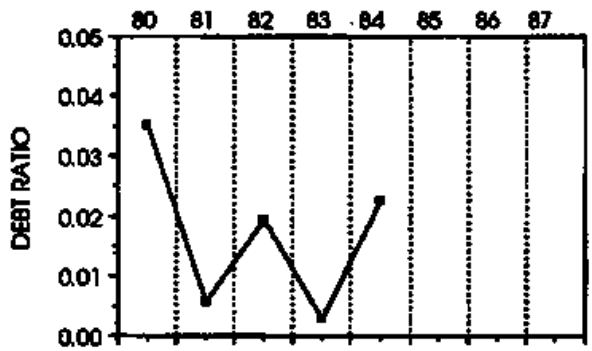
The reported annual incidence of measles rose from somewhat over 1,000 cases in 1982 to around 5,000 in 1983, and 7,000 in 1984 – increasing dramatically as the famine developed. In 1985 and '86 the numbers started to fall back to pre–drought levels.

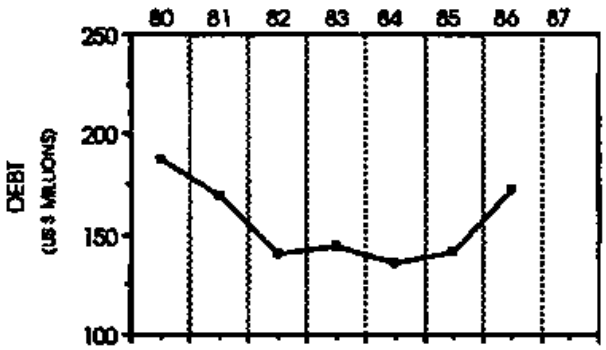
CHAD

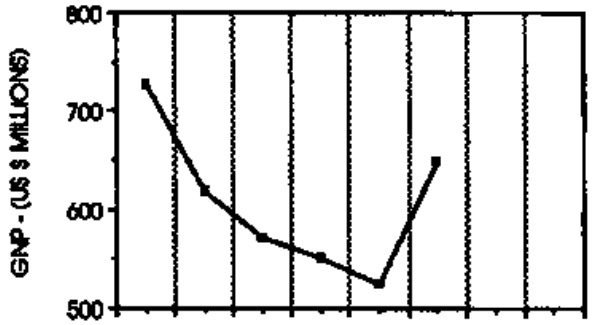


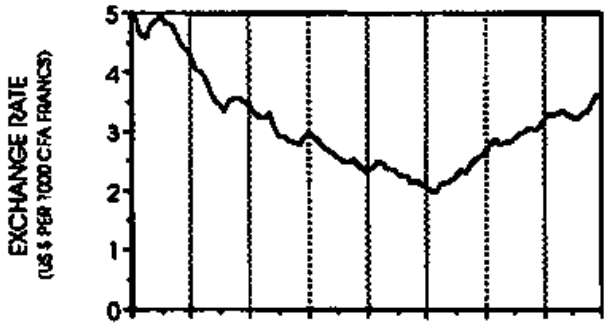
POPULATION: 5.3 M	IMR: 133
POPULATION DENSITY: 4 per sq. km.	U5MR: 227
POP. GROWTH RATE: 2.3% per annum	GNP (PER CAPITA): US$400
PERCENTAGE URBAN POP.: 30%	ESTIMATED PREVALENCE LEVEL UNDERWEIGHT CHILDREN: 30% – 40%

ECONOMIC INDICATORS

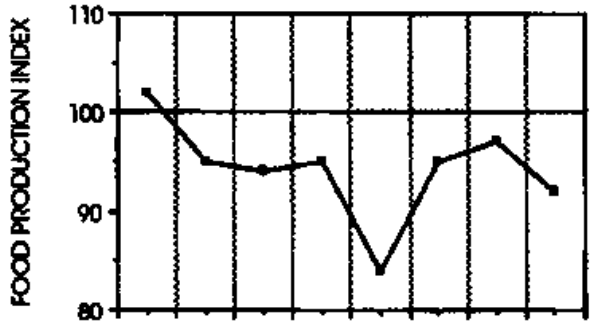


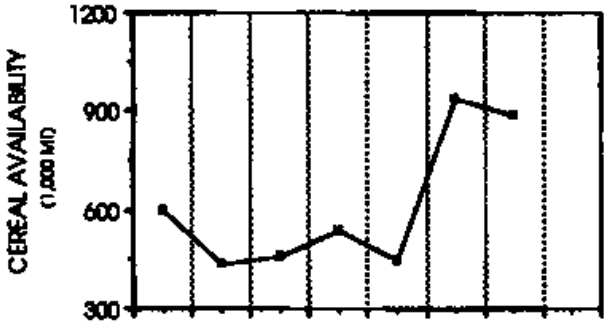


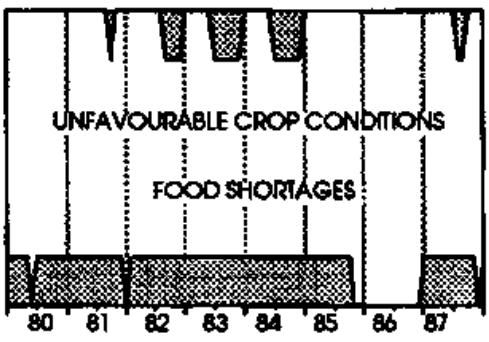


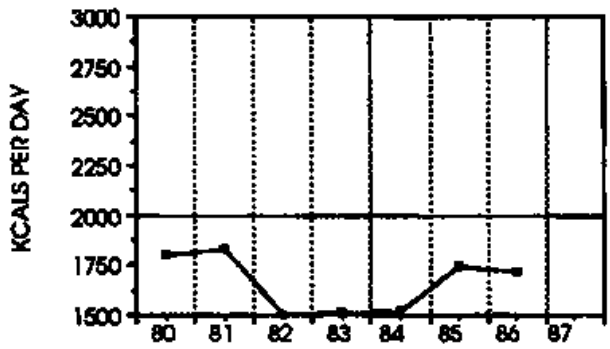


FOOD INDICATORS









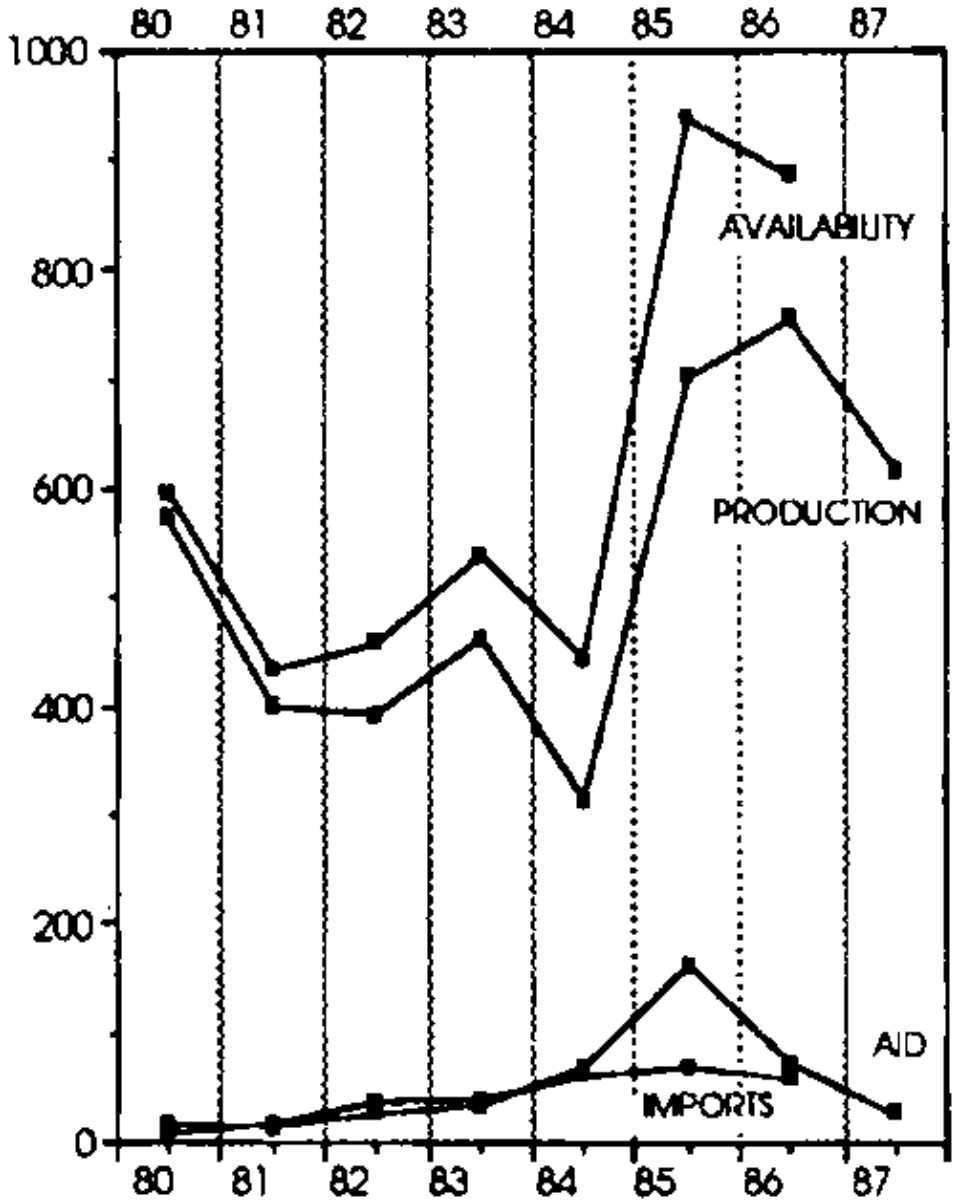
CPI — NOT AVAILABLE

FPI/CPI — NOT AVAILABLE

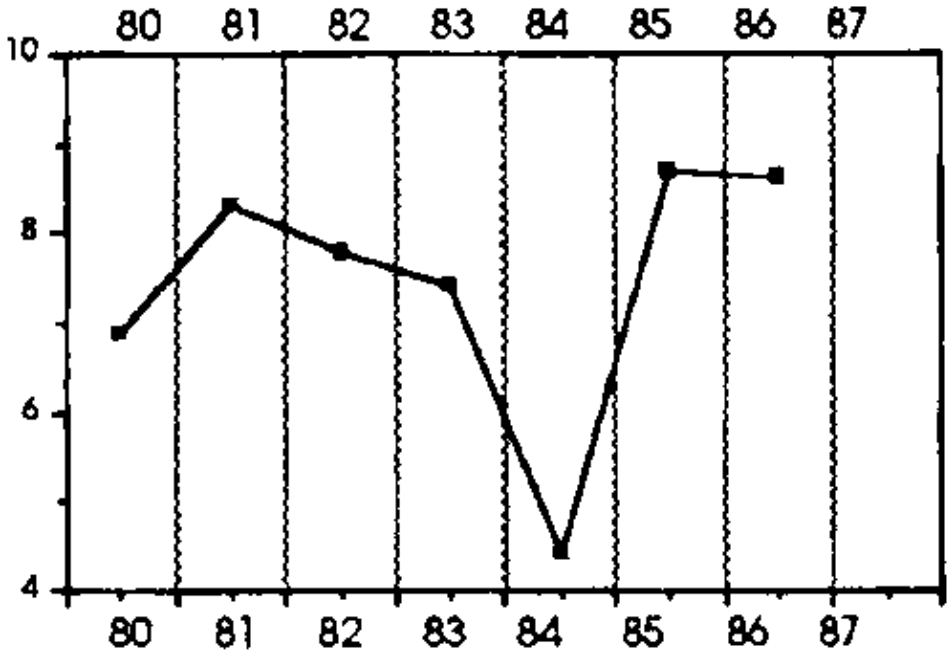
WASTED CHILDREN

% PREVALENCE — SEE OVER

ADDITIONAL FOOD & ECONOMIC INDICATORS

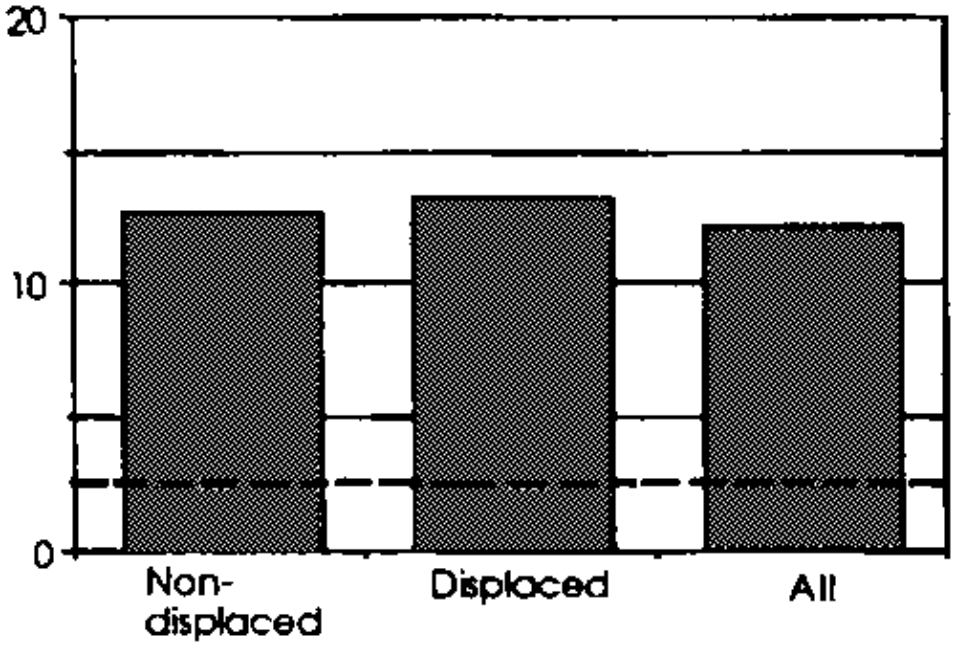


CEREALS (1,000 MT)



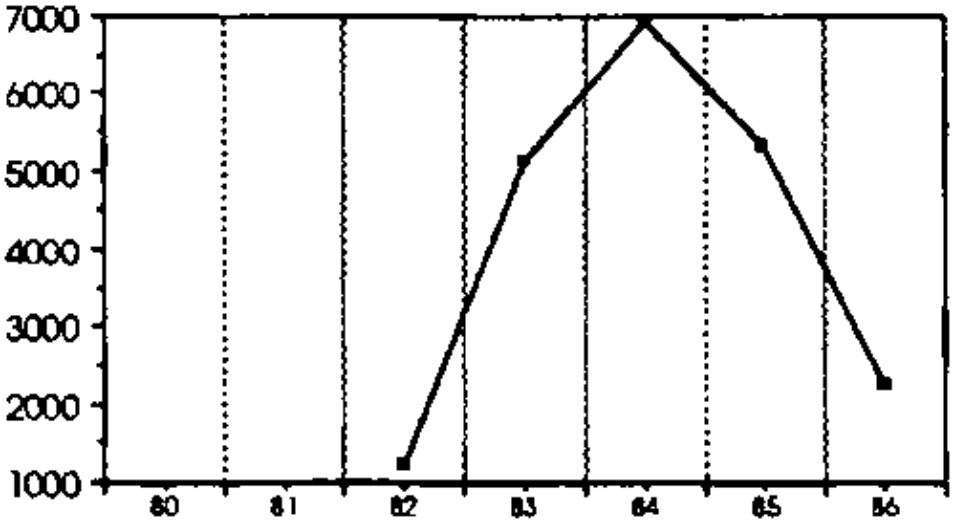
IMF CREDIT – (US $ MILLIONS)

ADDITIONAL PREVALENCE INDICATORS



% PREVALENCE – Prevalence of wasting (<80% Wt/Ht) in children under 110 cm height by displaced or non–displaced population in one province in 1985.

MEASLES



NUMBER OF CASES – Reported annual incidence of Measles

Ethiopia

Ethiopia, with around 45 million people, is the second most populous country in Africa. The high altitude and mountainous terrain profoundly affects the pattern of settlements, production and communication. Substantial numbers of rural people live many days travel–time away from the nearest road. The majority of the population are in the highlands, above 1800 metres, where rainfall is most reliable. The country is ranked as having the lowest per capita GNP in the World Bank's list of 97 developing countries.

Ethiopia is extremely vulnerable to drought. Much of the agricultural production depends on two rainy periods per year, the spring rains often providing seed for the main cropping season in the latter part of the year. The revolution in September 1974 introduced structural changes and a consolidation of the new regions. With suitable external economic factors positive economic growth occurred until around 1980. Deteriorating terms of trade – with falling prices for coffee, the main export crop – increasing import costs as well as international recession, began to take their toll in the eighties.

Food production fell overall in the latter 1970's, with extensive land reform and increasing internal strife. But some fragile economic recovery showed briefly in 1978 to '81. The deepening crisis, causing outright famine in several areas, came mainly from worsening internal conflict, with drought again taking lives from 1980–81. Conditions vary locally in the diverse ecology of Ethiopia and communications are restrictive for purposes of marketing, and for disseminating and gathering information. This can give rise to localized severe hardships. The national data, as shown in the panels, do not reflect the very real geographic variation. Government re–emphasis on agricultural production in the late 70's had a brief effect, until drought cut into the advances. Overall production had recovered somewhat in 1982 despite drought, but declined drastically in 1983 (see Food Production Index). By late 1982 some three and a half million people were reported facing severe food shortage. From 1982 onwards, the drought spread. Increasing numbers of the affected population, in the northern half of the country (Wollo, Tigray) and parts of the south, were both being destituted, and were not easily accessible to relief efforts. In October 1983, it was estimated that relief was reaching only one million of the three million people severely threatened. By August 1984, some six million were facing famine. Both the spring and main crops in 1984 were very poor. During this period, about three–quarters of the population were not in such desperate straits, but suffered attrition of their living standards. Internal conflict intensified, with major population movements. Food prices started to rise rapidly in 1984, and accelerated in 1985 with the cumulative effects of drought and internal disruptions on food supplies (FPI).

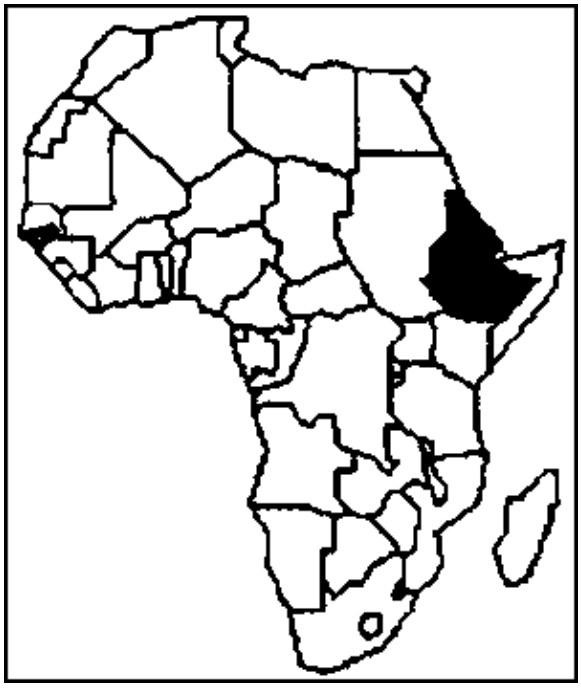
By mid–1985, grain prices were reported as double the normal level in some areas – in a situation where perhaps three–quarters of income goes on food. Finally, better rains returned for the late 1985 harvest, bringing some relief. Nonetheless, lack of draft oxen, seed and other factors reduced the possible food crop production. Imports and food aid built up by 1985, and the overall food supply improved. However, a substantial part of the affected population was still not accessible. Throughout 1982 to 1985 estimated total food available for consumption – already at a very low to average level of around 1750 – declined, reaching a minimum of about 1600 in 1985, an average well below requirement. From late 1985 and through 1986 rainfall improved, and the numbers of famine victims fell. Threats of locust and grasshopper plagues came, were partially realized, but held back by control measures. The spreading internal conflict increasingly disrupted

production and marketing. Pastoral lowland areas, often particularly affected by drought and with longer–term effects because of severe herd losses, have continued to suffer to the present time. While late 1985 and 1986 may have given some respite, the combination of internal conflict and drought have continued again in 1987 and 1988. By late 1987, widespread famine was again impending. Air–lifting of relief supplies helped somewhat in the towns but overall limited food supplies and internal distribution problems meant that millions of people were again faced with starvation, especially in Tigray and Eritrea. During 1988 emergency relief distribution continued in Eritrea, Tigray, Wollo and Gondar. While food aid pledges in excess of 1 million tons had been met by the end of the year, FAO reported that delivery to the affected provinces was again disrupted by civil strife.

Against this background, the extensive but still piecemeal information on nutritional status can be pieced together. We have extracted some information from reports available to us – many produced by collaboration between NGO's and the Ethiopian Government to investigate effects on child nutrition. The results (Mean Weight–for–Length) are from surveys carried out in one part of Wollo province in 1982–84. They illustrate some seasonally associated with harvest periods. We do not have exactly comparable data for the area beyond end–1984, but further surveys in the same region in 1987 referred mean weight–for–length values as having risen to 93–95%, a satisfactory level according to the Relief and Rehabilitation Commission (RRC). Recent results from NGO surveys in the same region for Feb–April 1988, show a range of 91 to 94.1%, with indications of a trend to deterioration at that time: (RRC standards) a satisfactory to poor nutrition situation, but not yet considered as an emergency in that area.

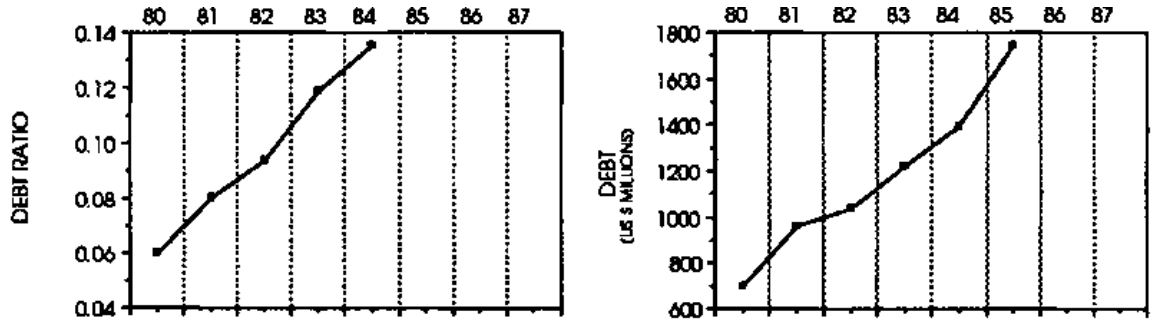
It is notable that the reported incidence of measles shot up in 1985, just as some recovery was evident in terms of food production, although not, as yet evident in the availability of Kcals per capita. Numbers of cases reported returned to the pre–'85 level during 1986.

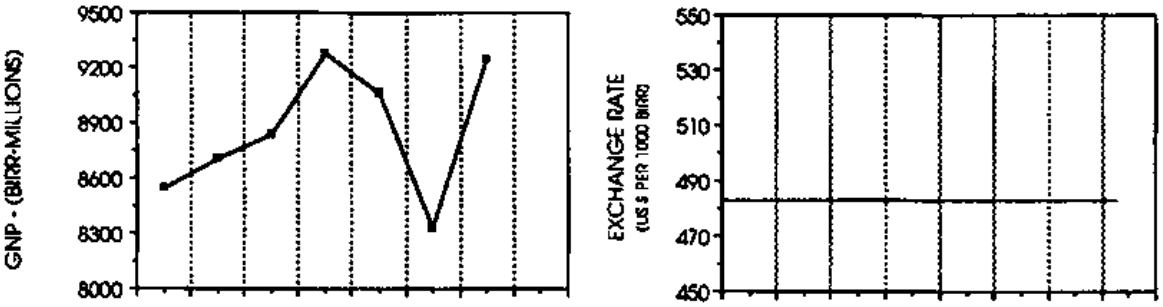
ETHIOPIA



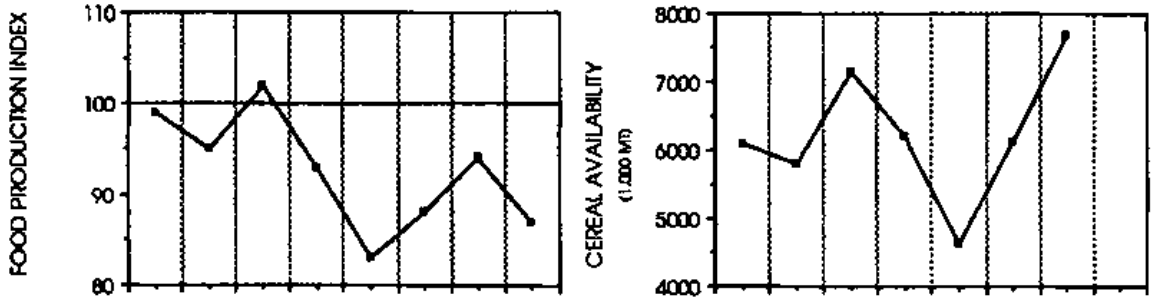
POPULATION: 43.8 M	IMR: 155
POPULATION DENSITY: 36 per sq. km.	U5MR: 261
POP. GROWTH RATE: 2.4% per annum	GNP (PER CAPITA): US$120
PERCENTAGE URBAN POP.: 12%	ESTIMATED PREVALENCE LEVEL UNDERWEIGHT CHILDREN: 25% – 35%

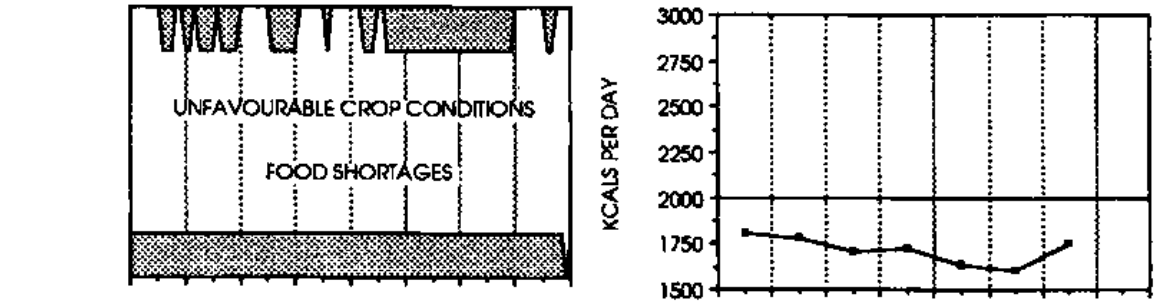
ECONOMIC INDICATORS

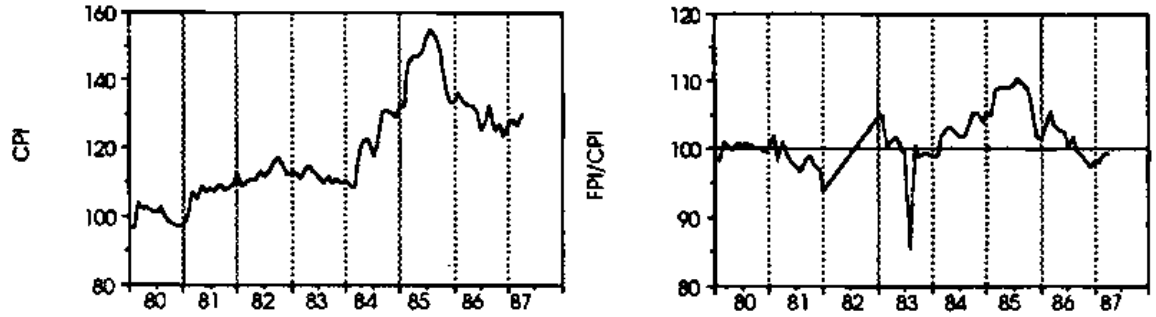




FOOD INDICATORS

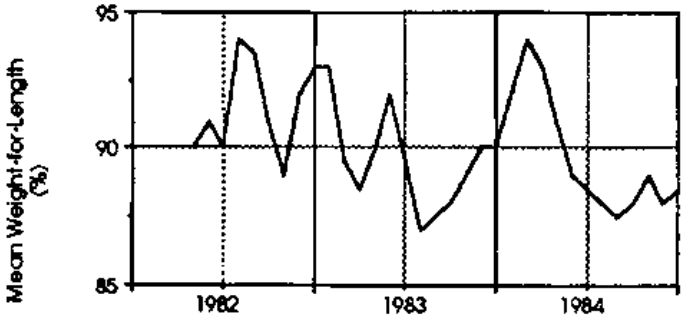




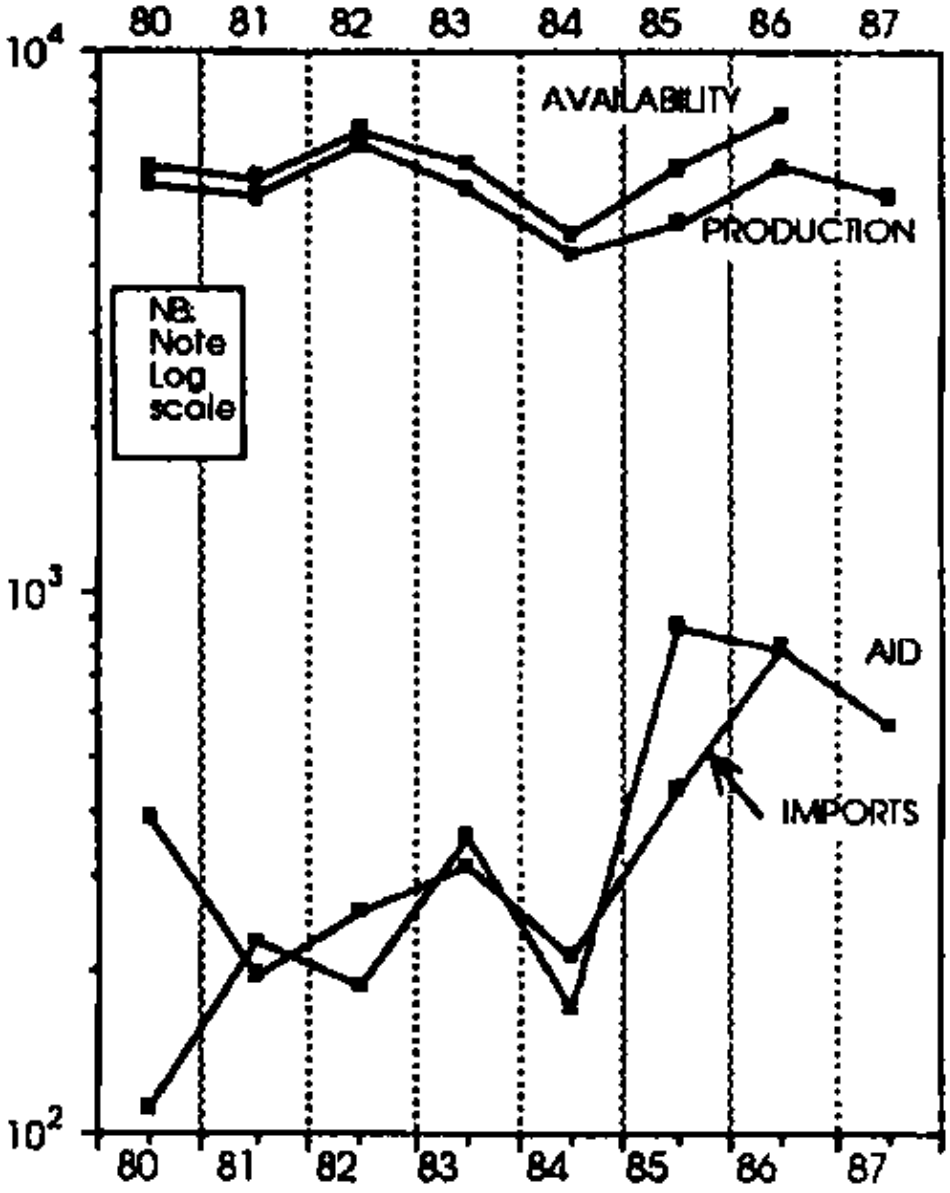


TRENDS IN MEAN WEIGHT-FOR-LENGTH

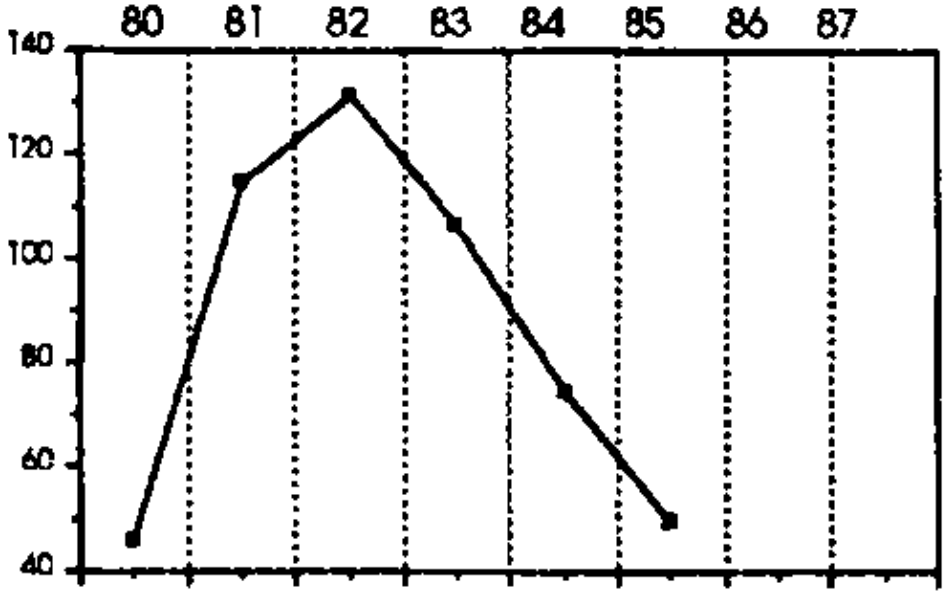
Example of changing mean weight-for-length (%) in pre-school children in Wollo Province: 1982-1984. (NB: in this example, a rising percentage signifies an improving situation and vice versa.)



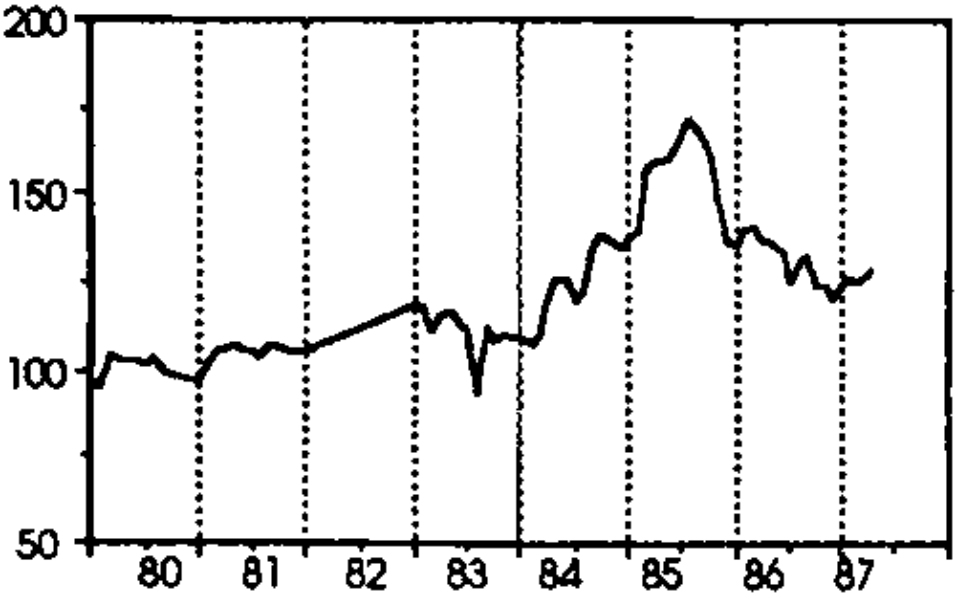
ADDITIONAL FOOD & ECONOMIC INDICATORS



CEREALS (1,000 MT)



IMF CREDIT – (US $ MILLIONS)



FPI

MEASLES

NUMBER OF CASES – Reported annual incidence of Measles

Following independence in 1965 the Gambia became a constitutional monarchy. Five years later the present republic was established. The country is one of the smallest in Africa, both in terms of area –11,295 sq. km. – and population –estimated at 0.8 million in 1987, giving a population density of 72 per sq. km. Most economic activity is centred on the river Gambia which bisects the country as it flows into the Atlantic. Annual rainfall averages 1,150 mm per annum.

Agriculture

The agricultural sector contributes half the country's GDP and employs eighty percent of the workforce. The main cash crop is groundnuts and its cultivation and processing is central to this sector and accounts for 50% of export earnings. Food production rose very substantially during the crop years 1981 and '82, only to fall sharply during the drought in 1983 (see Food Production Index). 1984 through 1986 saw a recovery; 1987 brought a slight reversal. Cereal production had three good harvests in succession after the drought ended in 1984 – 1987's being a record (Cereals). While commercial cereal imports have been low and falling (Cereals:Imports), cereal in the form of structural aid has fluctuated around 16,000 MT (Cereals:Aid). Food production remains well short of demand. Cereal imports and cereal aid are estimated by FAO at 15,000 MT each for 1988.

The Economy

The economy has suffered considerably in recent times, partly as a result of the drought and partly because of the high cost of inputs. By 1985, GNP had fallen to 50% of its 1980 value (GNP). Conversely, the foreign debt (as debt outstanding and disbursed) had more than doubled over this period (Debt). The IMF were approached in 1981 and a loan secured for purposes of stabilizing the economy. This proved to be infeasible because of the depression during and following the drought period. A further loan was negotiated but was subsequently suspended by the IMF in 1985 due to the country's level of indebtedness. Following a successful donors' conference in 1985 at which pledges were secured to assist in the restructuring of the agricultural and economic sectors, the IMF loan was restored in 1986. A number of austerity measures were introduced at this time, including tax increases.

Nutrition

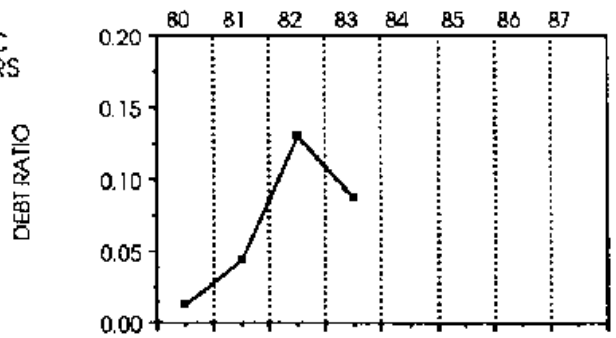
The Nutrition Unit of the Medical and Health Department in Banjul reports on the prevalence of malnutrition based on surveys conducted during 1985 through 1988. These surveys were carried out over several seasons. The seasonal change in the prevalence of wasting (recorded as < 90% reference weight–for–height) over this period is shown in the figure (Wasted Children). The August levels are higher as would be anticipated, as this corresponds to the rainy season and is immediately prior to the annual harvest. These levels may be compared with those from previous broadly comparable surveys undertaken since 1985 by the Department of Health (Regional Prevalence). Both national and regional levels show a slight decrease in the August values in 1986 over the previous year. The same month for 1987 is up on both previous years. Prevalences in the Central and Eastern regions are comparable and significantly higher than those of the Western region. This difference appears to be consistent over the 4 years.

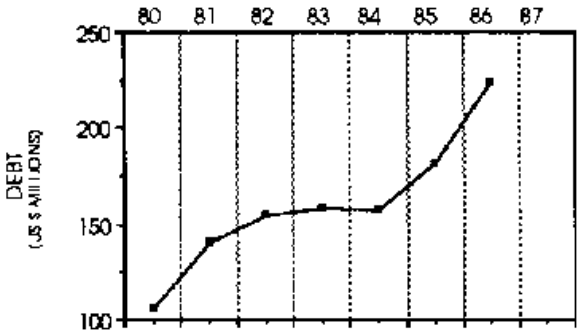
The presence of an ongoing British Medical Research Council's nutrition programme in West Kiang since the middle seventies, permits an examination of maternal weight changes between 1978 and 1987 (Maternal Weights). The study is based on 3 villages in the region, following weight changes in 444 women over the course of the 10 years. The subjects were studied mainly during pregnancy and early lactation. A study of the figure – based on 12,954 observations – indicates a strong seasonal component and evidence for a slight upward trend in mean weight. From June to October (the harvest period) there is a consistent loss in weight of 2.9 kgs. or 5.5% on average, between 1978 and 1985. The same pattern is also present in 1986 and '87, but its magnitude is much reduced. Hard physical labour in the fields, combined with diminishing food stocks prior to harvest are believed to account for this regular pattern. The general improvement in local facilities, including medical and water supply, are most likely responsible for the overall positive trend. It is tempting also to ascribe the reduction of the seasonal weight loss in 1986 and '87 to the excellent cereal harvests since 1985.

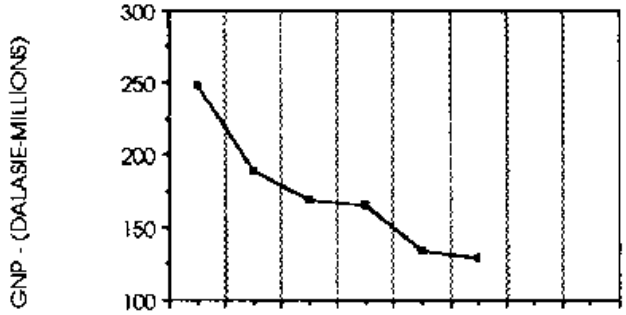
GAMBIA

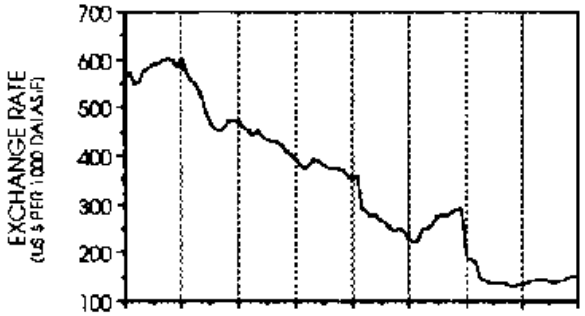
POPULATION: 0.8 M	IMR: 153
POPULATION DENSITY: 72 per sq. km.	U5MR: 264
POP. GROWTH RATE: 1.5% per annum	GDP (PER CAPITA): US$230
PERCENTAGE URBAN POP.: 18.4%	ESTIMATED PREVALENCE LEVEL UNDERWEIGHT CHILDREN: 15% –25%

ECONOMIC INDICATORS

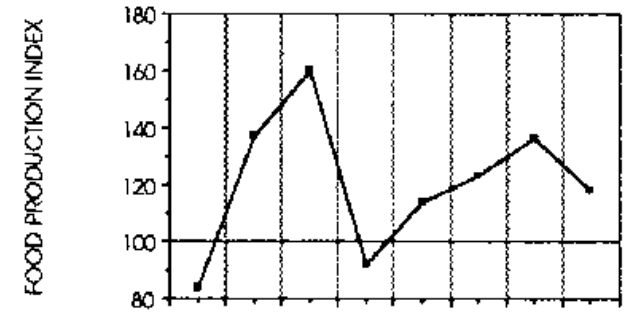


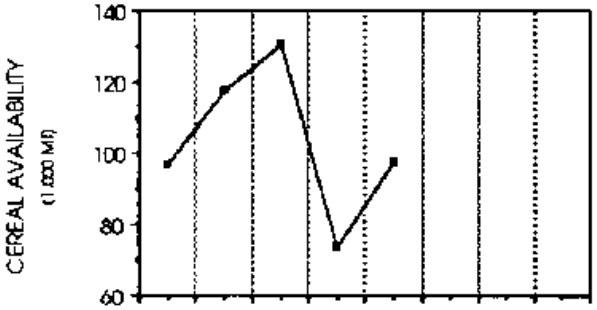


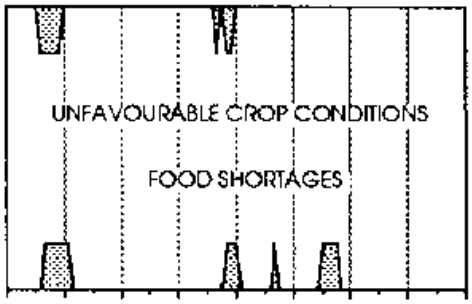


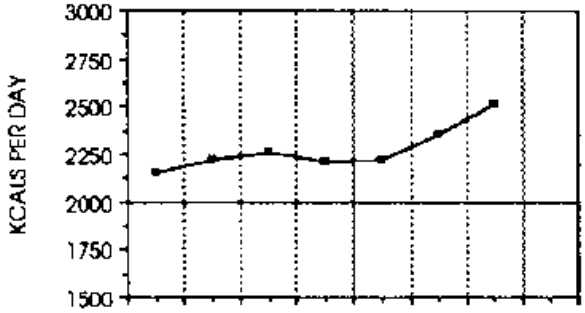


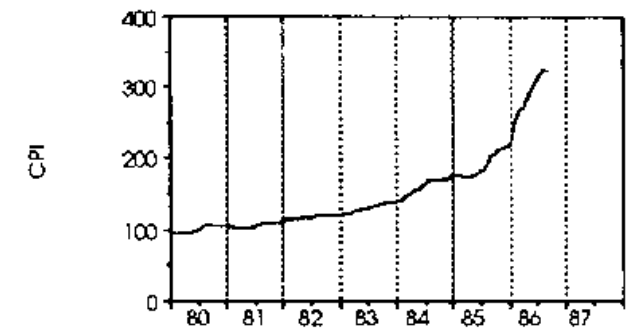
FOOD INDICATORS

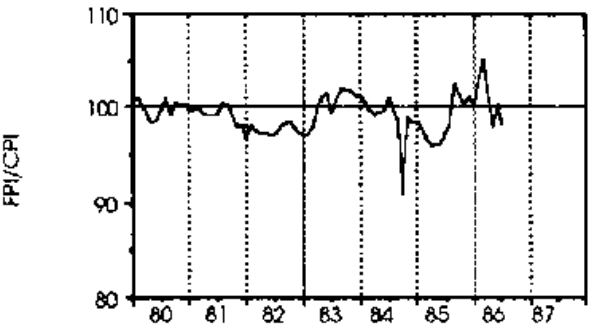






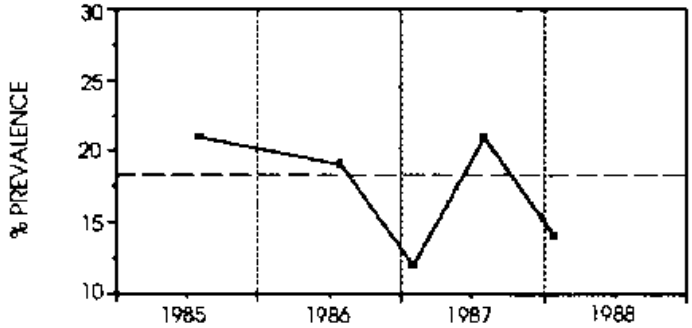




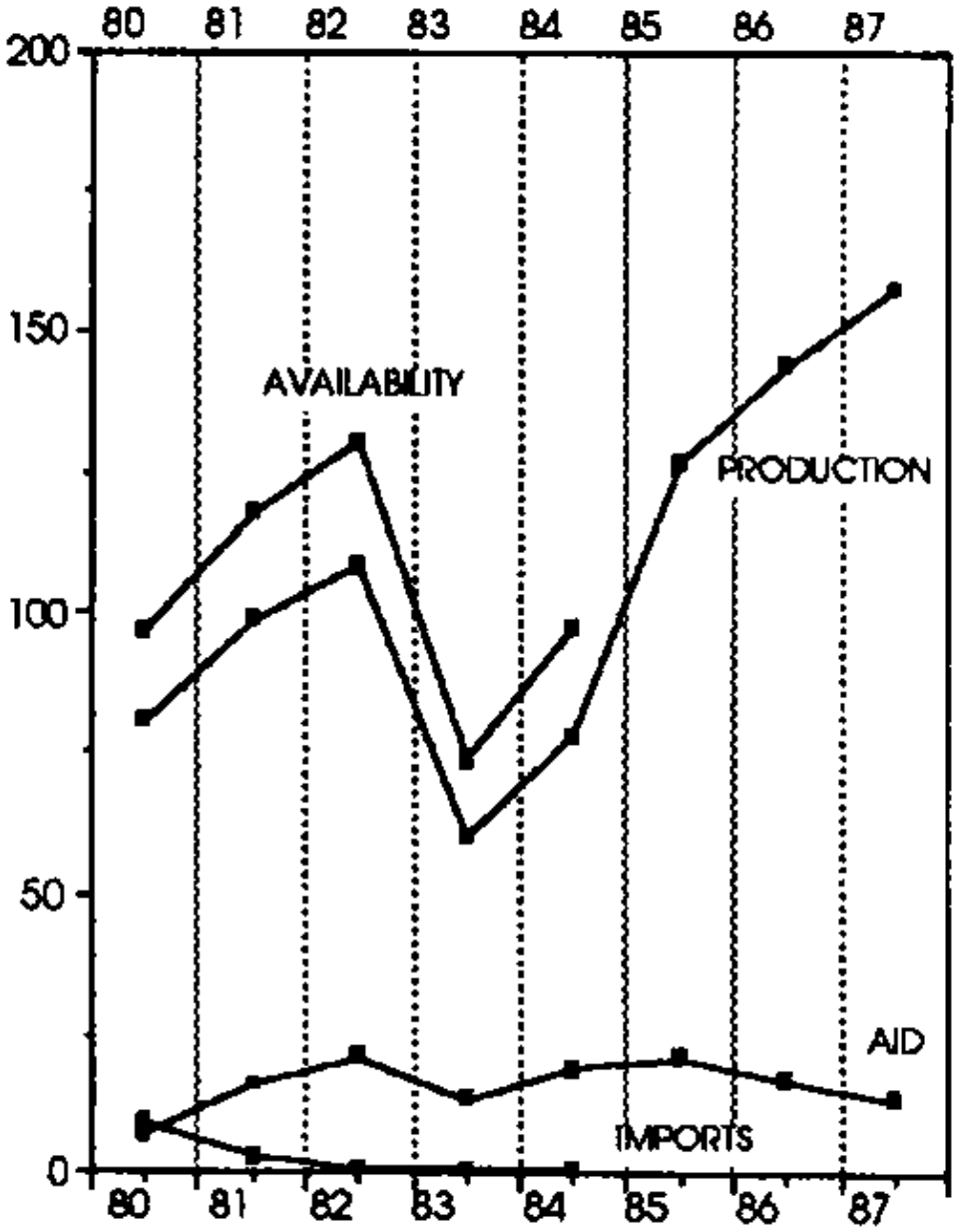


TRENDS IN WASTED CHILDREN

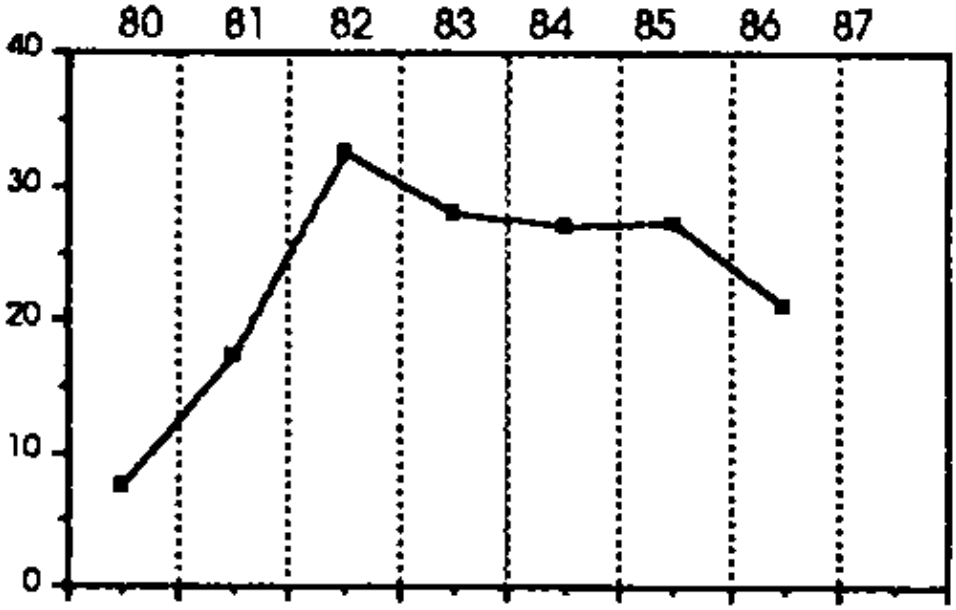
Prevalence of wasting (< 90% WT/HT) in children aged under 5 years. Nutritional Surveillance Programme data.



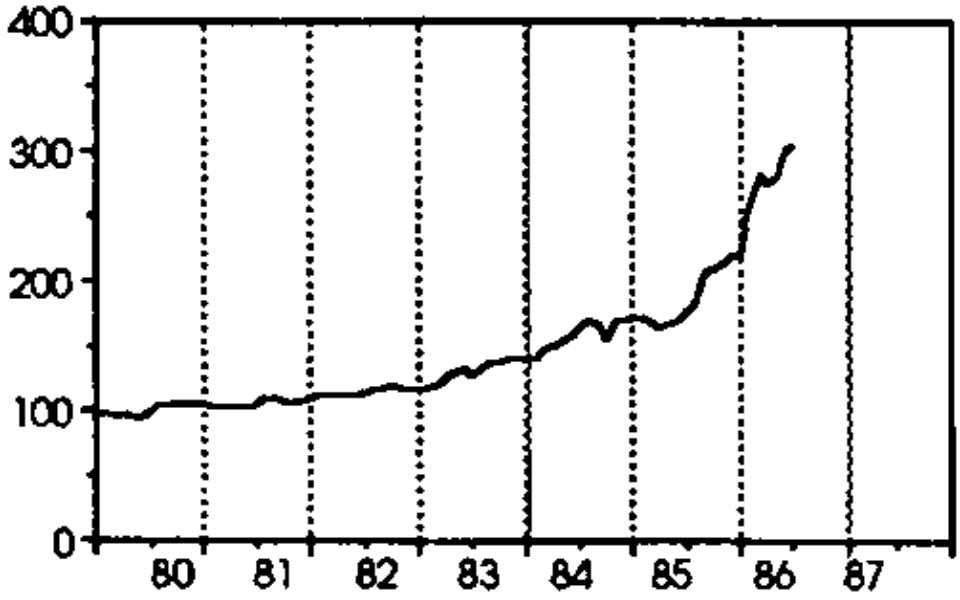
ADDITIONAL FOOD & ECONOMIC INDICATORS



CEREALS (1,000 MT)

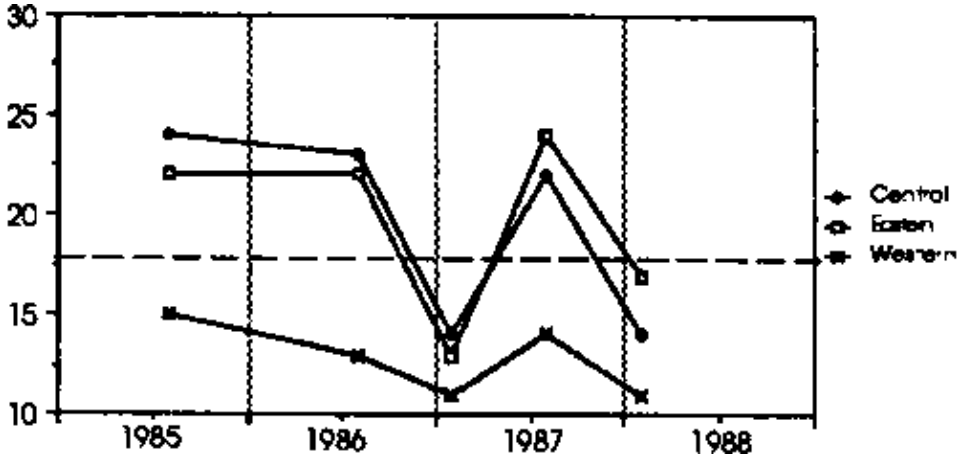


IMF CREDIT – (US $ MILLIONS)



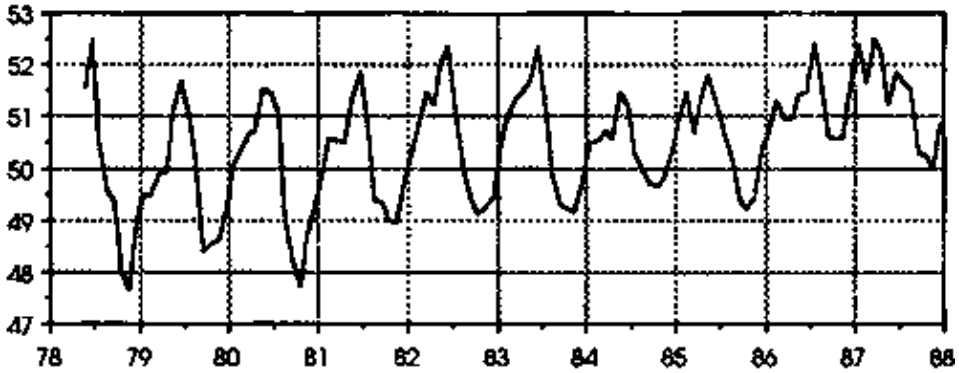
FPI

TRENDS IN REGIONAL PREVALENCE



% PREVALENCE – Prevalence of wasting (< 90% Wt/Ht) in children aged under 5 years by region. Nutritional Surveillance Programme data.

MATERNAL WEIGHT CHANGE



WEIGHT (KG) – Change in mean weight of mothers in West Kiang

Ghana

From the latter half of the 1960's until the 1980's Ghana experienced a period of prolonged economic stagnation, as a result of the combined effects of poor economic management and severely adverse external circumstances, notably world recession affecting many developing countries.

By 1982 estimated per capita food availability was extremely low (with Chad, the lowest in Africa). This was when no commercial imports or food aid were available in adequate volume (see Food Production Index & Kcals per day). It was with this already deteriorated economy that the country faced acute drought from 1982 to 1984. Prolonged drought, the worst in living memory, and the accompanying bush–fires aggravated the already low food crop production and created the worst food shortages since independence in 1957. In January 1983 about one million Ghanaians, expelled from Nigeria, arrived to put a severe strain on the critical food and employment situation.

The Economy

In the early 1980's economic difficulties, with heavy spending on imports, and regular budget deficits led to spiraling inflation. These factors, combined with an overvalued currency (Exchange Rate), reliance on energy imports and falling export earnings, contributed to an average annual decline of 0.2% in real GDP over the period 1970–1980. The situation worsened sharply in 1984 owing to the effects of the severe drought and chronic shortages of foreign exchange. Between 1980 and 1983, GNP fell by 13% compared with 1980 (GNP).

By 1983, the need for drastic reforms was recognized by the Ghanaian government. In April 1983, the government negotiated an agreement with the IMF, which entitled Ghana to a structural adjustment loan of up to $500 million. Ghana's economic recovery program (ERP) was launched that year, probably the year of greatest hardships in the decade, given the drought, returnees and bushfires. Policy reforms supported by the IMF and the World Bank, introduced during 1983 as the 3–year (1983–86) Economic Recovery Programme, included a massive devaluation of the Cedi (Exchange Rate), tight monetary and fiscal controls and increases in the official prices paid to producers.

Phase I of the Economic Recovery Program, which lasted from 1983–86, was a period of economic stabilization. The objectives were to halt and reverse declines in the productive sectors, to re–establish fiscal and monetary discipline, to rehabilitate the economic and social infrastructure, and to encourage private savings and investment. A key component of the stabilization was the major devaluation.

Failure of the past governments to adjust the exchange value of the domestic currency to reflect the decline in its purchasing power, was regarded as one major reason for the economic crisis the country was facing in the 1980s. Devaluation of the Cedi had taken place only twice in the 1970s (December '71 and August 78). In early 1983 the government began to depreciate the Cedi in the form of an export/import currency bonus system and later in the form of conventional devaluations. Between November 1983 and January 1986, the exchange rate of the Ghanaian currency against US Dollars depreciated from C2.75 to C90, i.e. by 97%. In September 1986 a two–tier exchange rate system was introduced as a condition for support in the form of a $90m stand–by arrangement from the IMF. In February 1987 the fixed rate was abolished and all transactions were determined by a weekly auction rate which in April 1987 stood at about US$1 equals C150–155. The IMF provided stand–by funds to enable purchases of petroleum to be made at the floating rate.

The percentage of debt outstanding and disbursed (Debt) over export of goods and services kept increasing from 1980 with a peak in 1983 but decreased again in 1984 and 1985 (Debt Ratio), indicating some lessening of the debt burden.

The initial devaluation in April 1983, in addition to the price control system – not yet waived by the government – led to widespread hoarding of consumer goods. Basic commodities were no longer to be found on the open market. This hoarding compounded the effects of the drought–induced shortages in 1983. Now goods are again readily available in the marketplace, but they are beyond the reach of most consumers.

During this period, indicators of child malnutrition (discussed below) showed a rapid rise in the prevalence of underweight children (Underweight Children), with an exacerbated seasonal peak of 46% in mid–1982, rising again to nearly 50% in mid–1983. Since that time, in line with the improving economic situation and recovery from the 1983 drought, prevalences of children underweight have been falling slowly, to around pre–crisis level.

Production incentives were adopted under the Economic Recovery Programme, particularly in regard to export commodities. Producer prices for cocoa were raised substantially. While the producer received 12,000 Cedis per ton in the '82–'83 harvest, an equal quantity fetched 140,000 Cedis in the '87–'88 harvest.

Certain macro–economic indicators suggest improvements since 1983. The inflation rate was down to an annual average of 23% from 1985–87, a marked fall from the 70% average from 1980–84. Increases in production have been achieved in the mining, mineral and timber industries. Export earnings, which were $430 million in 1983, reached $632 million in 1985, and $700 million in 1986.

In 1983 Ghana had 3 digit inflation, with the inflation rate rising to 123%, higher even than the rates in 1977 and 1981. The inflation rate began to level out at around 40 to 44% during 1984. Government estimates put the 1985 inflation rate at a much improved 15% though prices of most consumer goods including many items whose prices are fixed by the Prices and Incomes Board fluctuated considerably, owing to supply shortages. The inflation rate in 1986 increased to 25%. In 1984 the CPI and FPI reversed briefly from June through to the end of November, before resuming an upward trend.

Agriculture

Production of cocoa, Ghana's most important export crop, providing on average about 65% of total export earnings, declined during the 1970s and 1980s owing to a combination of factors, exacerbated by drought, bush fires and smuggling. The 1983/84 crop production fell from 557,000 tons in 1964 to less than 160,000 tons after drought and fires destroyed about 40% of cocoa farms.

In October 1983, the government launched a $130m campaign to revitalize the cocoa sector. Producer prices were increased by 67% followed by a further 50% increase in mid – 1984. A grant of US$2.4m from the EEC was used for improving transport and distribution services. Measures were taken, including buying essential inputs, insecticides, building materials and sprayers, offering cash incentives to farmers to replant cocoa to increase the output to 175.000 tons in 1984–85. Financial assistance from the World Bank enabled continuation of cocoa revitalization in 1985.

In May 1985 a further 90% increase in producer price and reducing cocoa smuggling led to increased production to 210,000 tons in 1985/86 and to 240,000 tons in late 1986. This was however still only 57% of the 1964 level. Producer prices were raised again in 1986 to C85,000/ton compared to C30,000/ton in 1984. Cocoa revitalization continued in 1986 as a condition of a US$ 490m standby facility from the IMF in September.

Food production statistics showed a poor performance, similar to cocoa (Food Production Index & Kcals per day). Total cereal production from 1976–81 showed a 14% decline, compared with 1971–75 figures; production of starchy staples declined by 35% over the same period. In 1981, per capita calorie consumption was estimated to be only 68% of requirement, a level lower than in any other African country but Chad. The situation may have been even more difficult for the food purchaser than the producer. The consumer, whether a net producer or purchaser of food, faced severe hardships in the late 1970's and early '80s. The difficulties caused by rising prices did not subside with the end of the drought in 1984 (FPI).

After acute food shortages of 1983 by the end of which the government requested 250,000 MT of emergency food aid, favourable weather conditions combined with new price incentives also helped to increase crop yields (other than cocoa) considerably; e.g. maize, rice, cassava, yam, beans, groundnuts and millet. With an

average annual population growth rate of 3.3% for the whole country from 1980 to 1985, the rise in food production was not sufficient to meet total demand and 175,000 metric tons of food aid was needed in early 1984. A price–support structure to combat fluctuating producer prices was introduced in 1985. After some decline in food production indices in 1985, it was increased again in 1986.

Nutrition

Nutrition surveillance data have been compiled by Catholic Relief Services in Ghana since 1980. The statistics are collected at maternal and child health clinics located throughout the country. The clinics are operated by the Ministry of Health and private agencies. The data reported here are for children 7–42 months of age, for the years 1980 to 1987. Comparable data for the 1970s are not available. The CRS data provide a profile of the nutritional trends in Ghana over the eight year period. Both the acute hardship of 1982–83, and the post–drought recovery, are evident in the nutritional profile.

Throughout the period, food prices and especially the relative price of food (FPI/CPI) corresponded closely with prevalences of malnutrition. However it appears, here as elsewhere, that while increasing FPI/CPI corresponds with increasing prevalences of underweight children, a falling FPI/CPI occurs without a corresponding rate of fall in underweight prevalence. This may be because increases in prevalence begin with wasting, but prolonged low intake produces stunting. Thus a residue of stunted children remain, e.g. in 1985 in Ghana, and the prevalence falls more slowly that it rises. This in turn is presumably due to a cohort effect, to possible gradual recovery from stunting, and to more rapid (but diluted) reduction in the prevalence of wasting. This is in contrast to the seasonal effect, where prevalences return to 'trough' values, presumably because the peak is mostly wasting. There are implications for long–term effects here.

In 1980, levels of underweight were estimated at around 35%. In 1981 they ranged from 33 to nearly 40% prevalence of low weight–for–age. By 1982, a marked deterioration was evident. Malnutrition levels started to increase in November 1981, and continued to rise through June 1982. On average, they were 5% higher in 1982 than in 1981. The failure of the 1982 rains may explain much of the deterioration. The decline continued into 1983. Malnutrition levels were an average of 3–4% higher in 1983 than in 1982.

The CRS data for 1984 and 1985 are unfortunately not strictly comparable to that of the other years. A major turn–over in the population of children being monitored resulted from the initiation of an emergency relief program, in early 1984. Families that had not previously attended the clinics regularly began to participate, in order to receive relief food aid. In addition, more severely malnourished children were monitored bimonthly, and their statistics were not included in the CRS compilation. Consequently, the 1984 and 1985 data are not fully comparable with those of the other years; 1982–83 and 1986–87 can be used to view the pre– and post–drought trends.

Seasonal trends are evident in the Ghana nutritional profile. Prevalence of malnutrition peaks from April–July, the pre–harvest lean season. By August, the prevalence of malnutrition usually begins to fall, with the improvement continuing through to January or February, the post–harvest period of plenty.

Where the seasonal element has been removed to show the underlying trend (Prev. De–seasonalized) it is evident that in 1986 and for much of 1987, nutritional levels had returned to the 1981 level. We also see that the latter half of 1986 was an exceptionally good period.

The apparent sharp rise in malnutrition from October through December 1987 in the data is related to a re–targeting of the CRS program. Activities were discontinued in five of the regions (based mainly on the prevailing degree of underweight in the target–group) as of October 1987. Thus these data do not necessarily reflect changes in nutrition in the population.

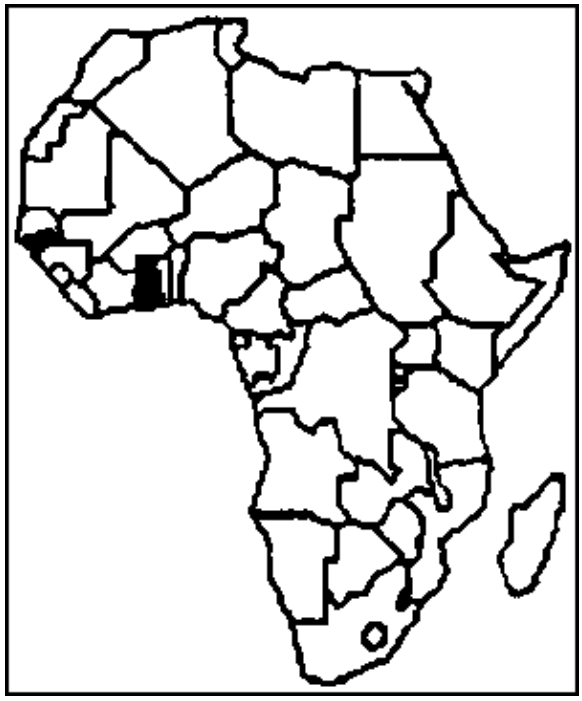
The available data suggest that nutritionally, 1982 and '83 were the worst years for Ghana. While valid comparable data do not exist for 1984–85 to monitor the improvement, 1986 and '87 figures indicate a return to the pre–drought 1981 nutritional levels. Nevertheless, considerable cause for concern remains. A national nutrition survey, conducted by UNICEF Ghana in 1986, confirmed that serious nutritional problems remained in Ghana.

Combating the impact of structural adjustment on the country's poor is on the government of Ghana's agenda. With the support of UNICEF, the government presented a Program of Action to Mitigate the Social Costs of Adjustment (PAMSCAD) to a donors' conference in February 1988. The program includes projects for employment generation, to compensate for the lay–offs in the civil service and para–statal firms.

PAMSCAD also includes community−based projects for infra−structural improvements, including road repair, school and clinic reconstruction, and the de−silting of dams. A range of basic needs projects was also presented; they included hand−dug wells, essential drugs, the de−worming of primary school children, and supplementary feeding schemes for preschool children. While the projects do not all represent activities that would not have occurred outside of PAMSCAD, the portfolio represents a first in the presentation of a package of socially−oriented projects in tandem with a structural adjustment program.

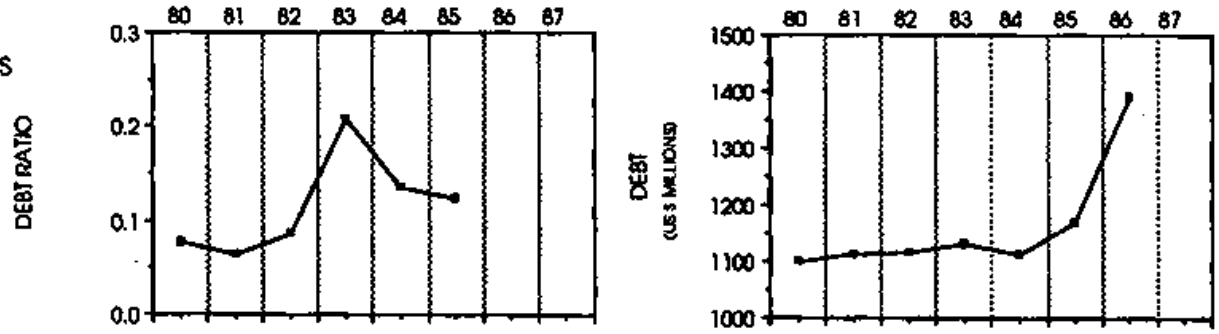
The total cost of the PAMSCAD package is $83.9 million, with $11 million in the form of food aid. Initial commitments have been made by the donor community in response to the hardships facing the Ghanaian population, and the government's commitment to responding to the long−term economic problems of the country. Continuing nutritional surveillance during the second phase of the economic recovery program will help enable the government and donors monitor how well the vulnerable have been protected from the impact of economic restructuring.

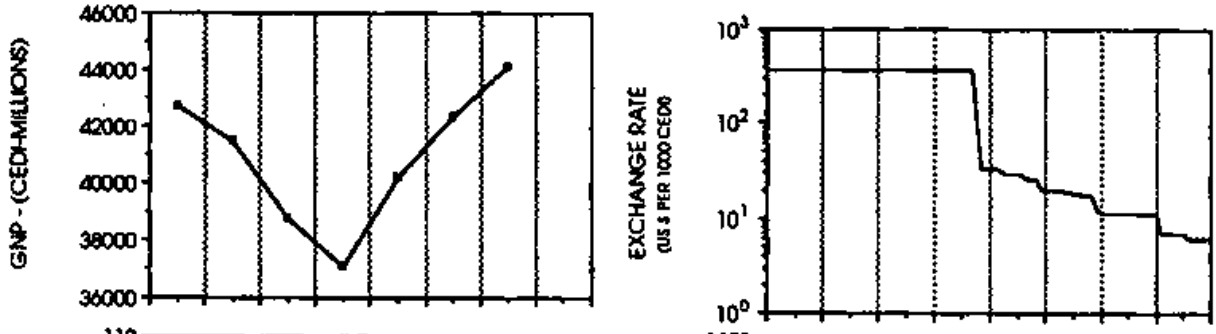
GHANA



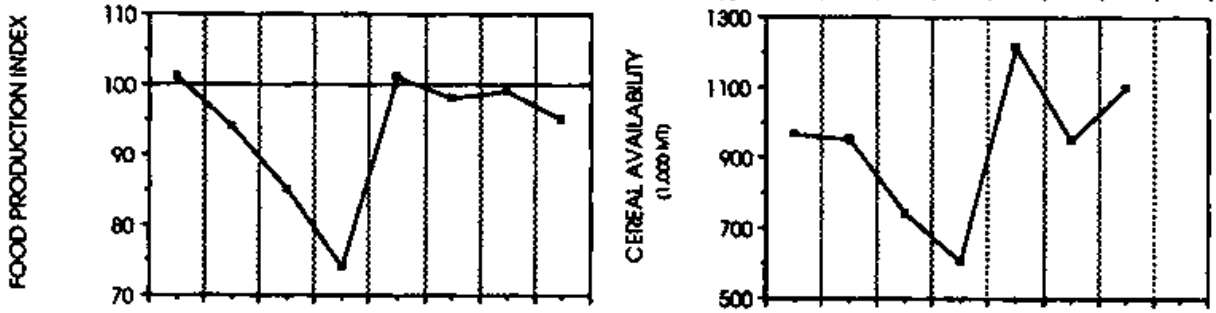
POPULATION: 13.7M	IMR: 91
POPULATION DENSITY: 57 per sq. km.	U5MR: 149
POP. GROWTH RATE: 3.5% per annum	GNP (PER CAPITA): US$390
PERCENTAGE URBAN POP.: 32%	ESTIMATED PREVALENCE LEVEL UNDERWEIGHT CHILDREN: 25% – 35%

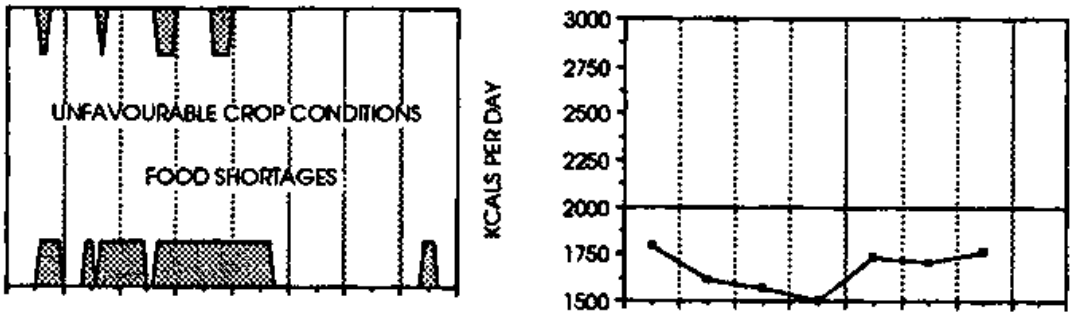
ECONOMIC INDICATORS

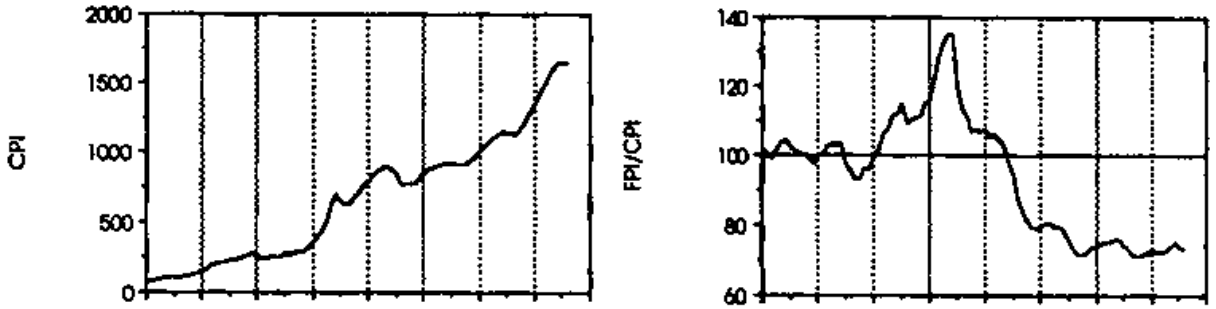




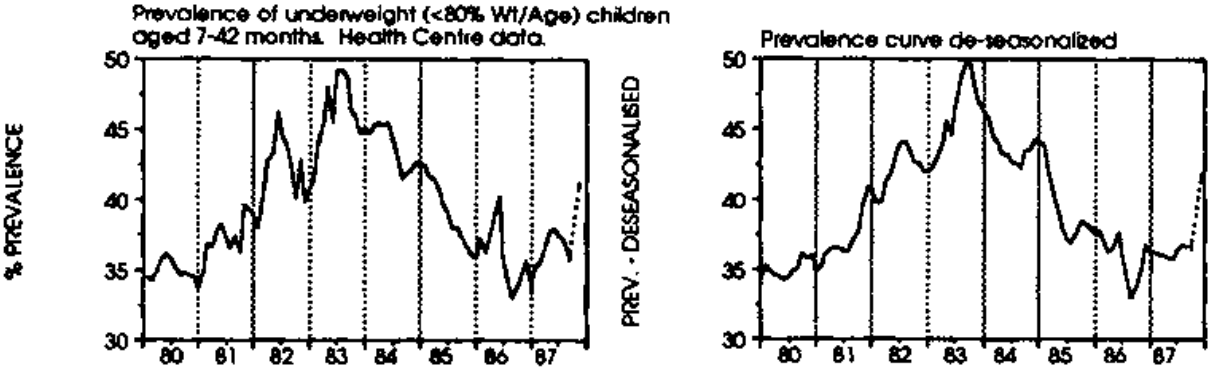
FOOD INDICATORS



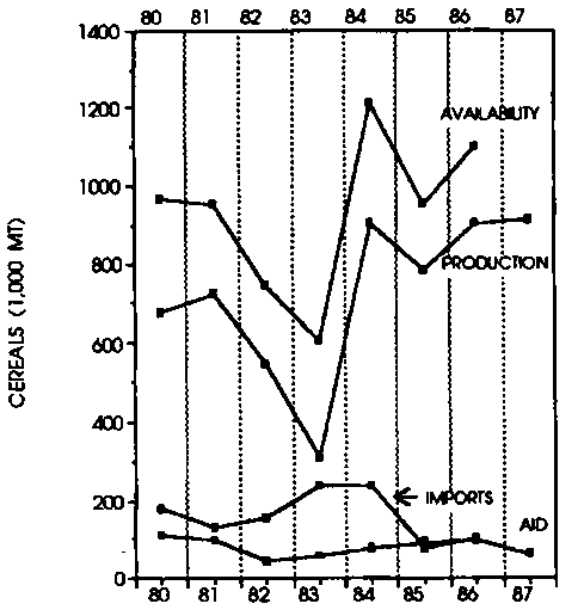


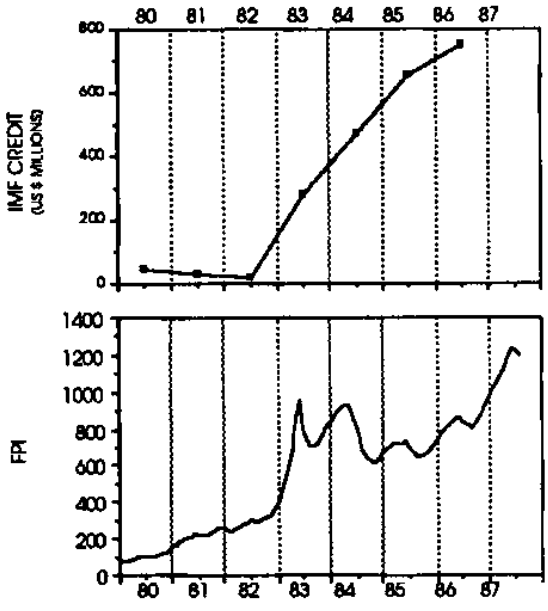


TRENDS IN UNDERWEIGHT CHILDREN



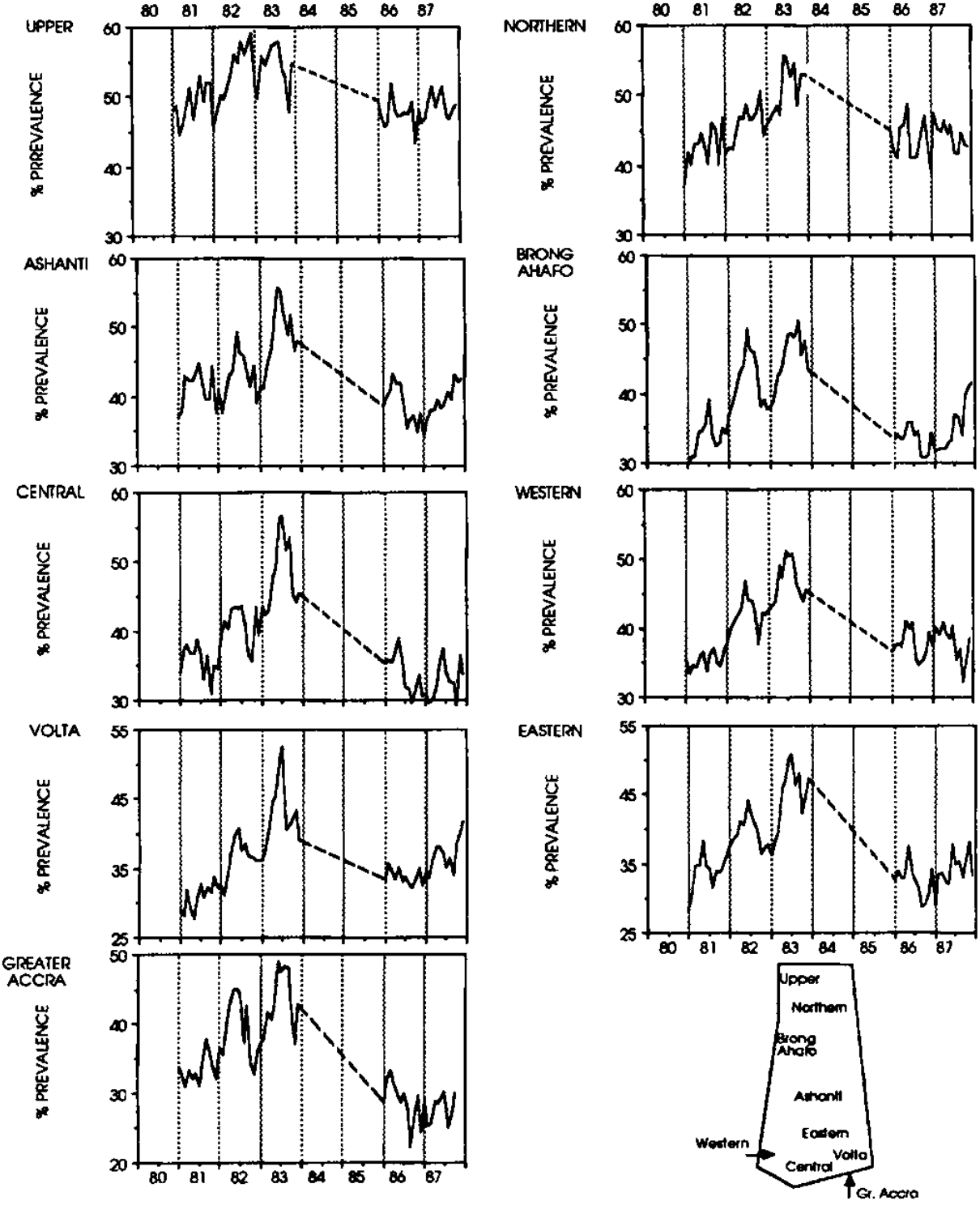
ADDITIONAL FOOD & ECONOMIC INDICATORS





TRENDS IN REGIONAL PREVALENCE

Prevalence of underweight (<80% Wt/Age) children aged 7-42 months by region. Health Centre data



Lesotho

Lesotho is small and land–locked, being surrounded on all sides by South Africa. Less than 13% of the land is cultivable, but the mountainous terrain provides good grasslands for livestock development. However, since nearly all the available land is cultivated, only more efficient use could increase production. The livestock industry has been hindered by poor management, low quality animals, and disease. These problems are reflected in a poor economic situation which has been deteriorating in the 1980's and was exacerbated by drought in 1983/84.

Agriculture

Although agriculture is still the single largest contributor to GDP, it's share declined from 47% in 1970 to 22% by 1988. This decline was gradual in the beginning but accelerated 1983/84, with the impact of the drought. Indicators of food production suggest problems for Lesotho even before the drought reached its peak in 1984; food production (see Food Production Index) and cereal production took the sharpest decline sometime earlier between 1980 and '82, followed by further slowdowns in 1983/84. Total cereal production went from a high of 194,000 MT in 1980 to a low of 125,000 MT in 1982 (Cereals: Production). The food production index declined rapidly from 104 in 1981 to 92 in 1984. Information on food shortages and unfavourable crop conditions confirm a problem by mid–1980, which continued through 1987 with only two "relief" periods in mid–1981 and mid–1985 (Food Shortages). The reduced harvest in 1986 was reported to be 20% below that of 1985 and did not return to normal until the harvest period in 1988. Thus, it is expected that production and food availability should have improved by 1988.

Overlapping food shortage with the ratio of food price and consumer price indices (FPI/CPI & Food Shortages) shows that the two periods with no reported shortages correspond with a decline in the ratio, suggesting that in periods of adequate food supply, food prices are down relative to overall consumer prices.

Despite the deteriorating trends in production in the early 1980's, the amount of food available, expressed as kcals/caput/day (Kcals per day), showed a marked improvement in 1982–83 after an initial decline in 1980–81. This was likely the result of the increased import of cereal from 70,000 to 129,000 from 1981 to 1983 (Cereals:Imports), which offset the fall in production. Imports then decreased after 1983 even though production remained low, but at this point cereal aid climbed by 42,000 MT which nearly offset the difference (Cereals:Aid). Improvement was apparent in 1985 for all indicators, but it was short–lived, and in 1986 although cereal imports increased slightly it was not enough to offset a decline in cereal aid and production. By June 1988, FAO were reporting that the recently harvested cereal crop was above normal and substantially above the poor 1987 crop.

The Economy

In 1981 it was estimated that 23% of the economically active population of Lesotho worked in South Africa (one half of the adult male labour force), reflecting limited opportunities at home due mainly to land shortage and the poor state of agriculture. Lesotho faces substantial economic problems. The trade gap widened in 1983 as a result of the drought, with exports decreasing and imports rising (primarily food). Total debt outstanding and disbursed, as reported by the World Bank (Debt), shows a steady increase after 1980, and the continued widening of the budget deficit led the government to reach a preliminary agreement with the IMF in June 1987. Before that time, Lesotho was one of the few African countries without IMF credit.

At home, the exchange rate declined 64% from 1980 to 1987. A sharp fall in the exchange rate occurred from 1981–82, and again in 1984–85. The largest decline occurred in 1984–85 of over 40% in the value of the Loti, the local currency (Exchange Rate). Food and consumer prices rose steadily from 1980 to 1986 with no marked acceleration due to the drought (FPI, CPI).

Nutrition

The prevalence of malnutrition showed a consistent seasonal fluctuation[1] combined with a sharp increase after 1984, corresponding to the drought (Underweight Children). The acceleration in underweight prevalences began in 1984, during the "pre–harvest" hungry period (October to December), with a mean

prevalence 4–5% above the mean for the same quarter in 1982 and 1983. This deterioration can best be seen after removing the seasonal component (Prev. Deseasonalized). The 1985–87 prevalences stabilized but remained high throughout the year, still following a seasonal pattern, but with no return to pre–drought levels. Exactly the same pattern appeared in exchange rates with a sharp decline in 1984–85 followed by three years of stability. Although this cannot imply causality, the relationships between certain economic indicators and prevalence estimates are quite evident and consistent. It is however different from a number of other countries (e.g. Ghana) with general price increases (CPI) rather that the relative price of food (FPI/CPI) related to underweight prevalence.

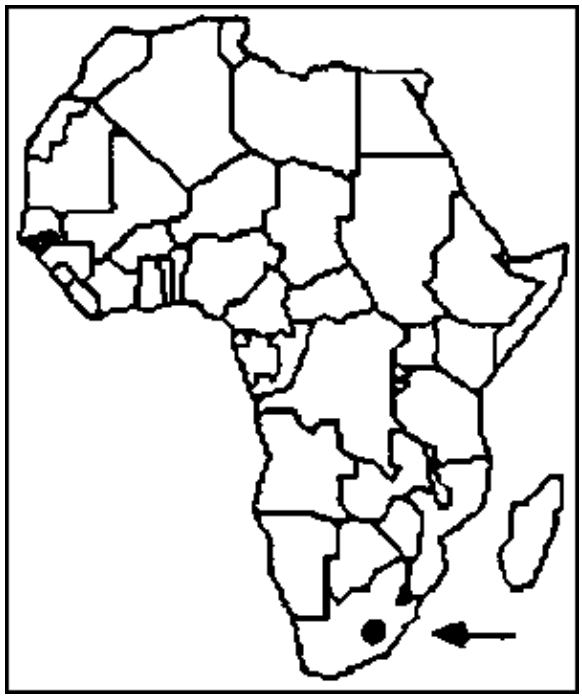
[1] Also noted for data from the seventies, as reported by Cohen, N, and Clayden, A.D., "Seasonal Variation in weight of children attending an under–fives clinic in Lesotho", Acta Paediatr Scand, Vol. 67: 25–31, 1978.

The consistent seasonal pattern in prevalences follows the expected trend with the harvest period, with peak malnutrition levels in January–March, just prior to the harvest, and again increasing four months after the harvest in October. The seasonal component (i.e. the factor by which prevalence increases or decreases as a result of seasonality which is superimposed on any long–run trend) is strongly evident (Seasonality).

A striking similarity exists in the seasonal effect in diarrhoea and the prevalence of malnutrition – compare the seasonal component of prevalence of underweight to number of cases of diarrhoea reported (Seasonality) – to the extent that the two plots are almost indistinguishable. Peak prevalences of diarrhoea occur in January–March, reach their lowest point in August–October, then increase again. Diarrhoea very likely contributes significantly to the decline in nutritional status which is further aggravated by low food availability in the pre–harvest period.

It is accepted that the two major influences on nutrition are 1) infection and 2) food intake. The monthly trends in underweight prevalences and diarrhoea clearly demonstrate the former association. However, unlike malnutrition prevalences, the diarrhoea patterns do not show an increase after 1984 but maintain a consistent seasonal trend with the lowest and highest number of cases reaching the same level year after year. Thus, although the seasonal nutrition component may be more related to diarrhoea than food availability, the overall increase after 1984 must be related to another factor. The link between prevalences and the harvest period suggests an effect of food availability, although actual intake cannot be determined from these data. More obvious are trends in food production and economic indicators which clearly show a severe downward trend due to the 1983/84 drought, corresponding to this increase in malnutrition.

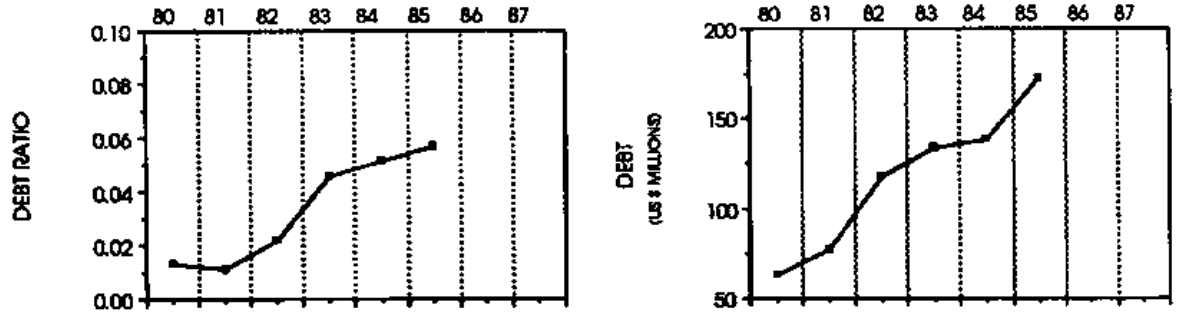
LESOTHO

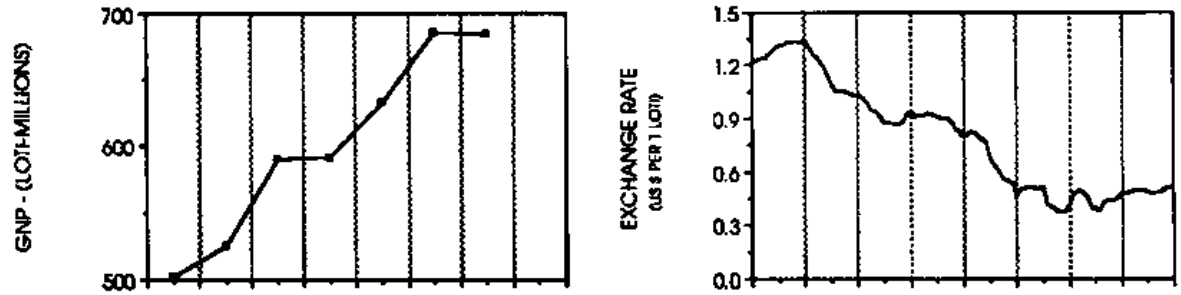


POPULATION: 1.6 M IMR: 101

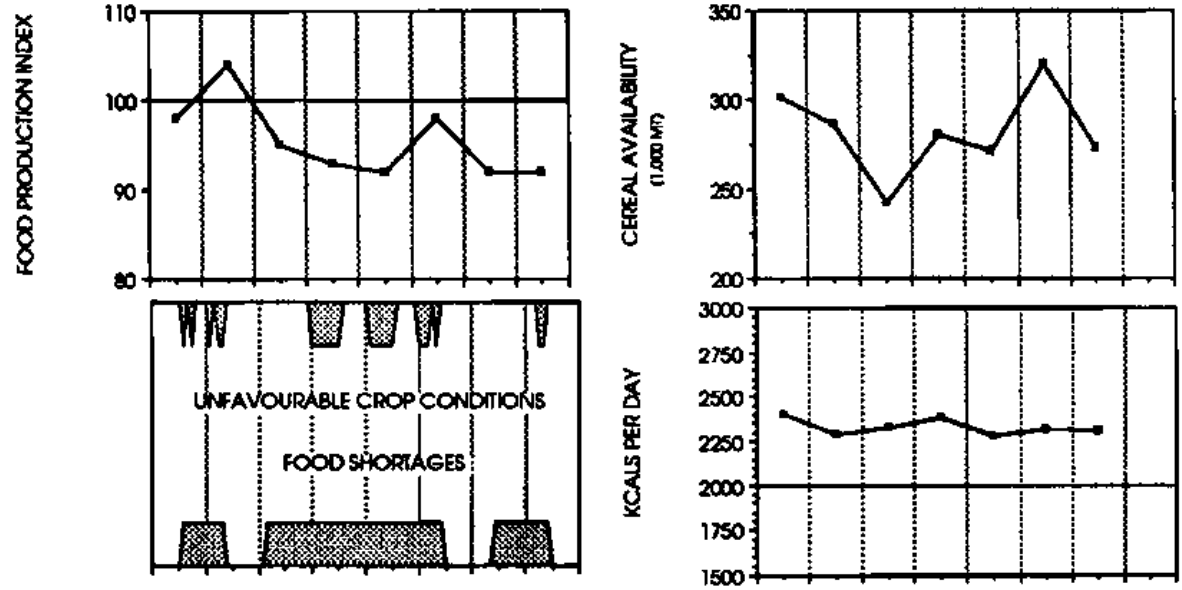
POPULATION DENSITY: 53 per sq. km.	U5MR: 139
POP. GROWTH RATE: 2.7% per annum	GNP (PER CAPITA): US$370
PERCENTAGE URBAN POP.: 18%	ESTIMATED PREVALENCE LEVEL UNDERWEIGHT CHILDREN: 15% – 25%

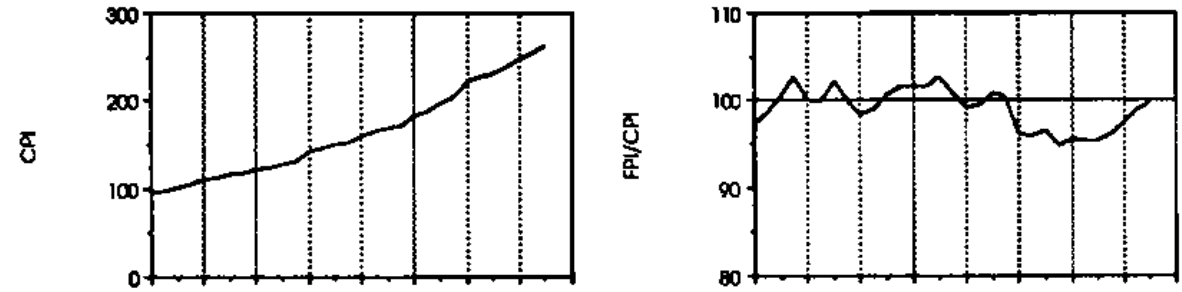
ECONOMIC INDICATORS



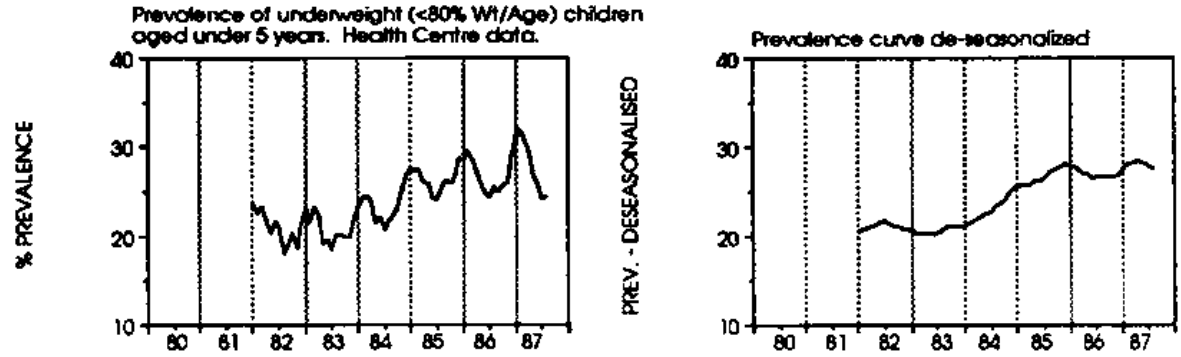


FOOD INDICATORS

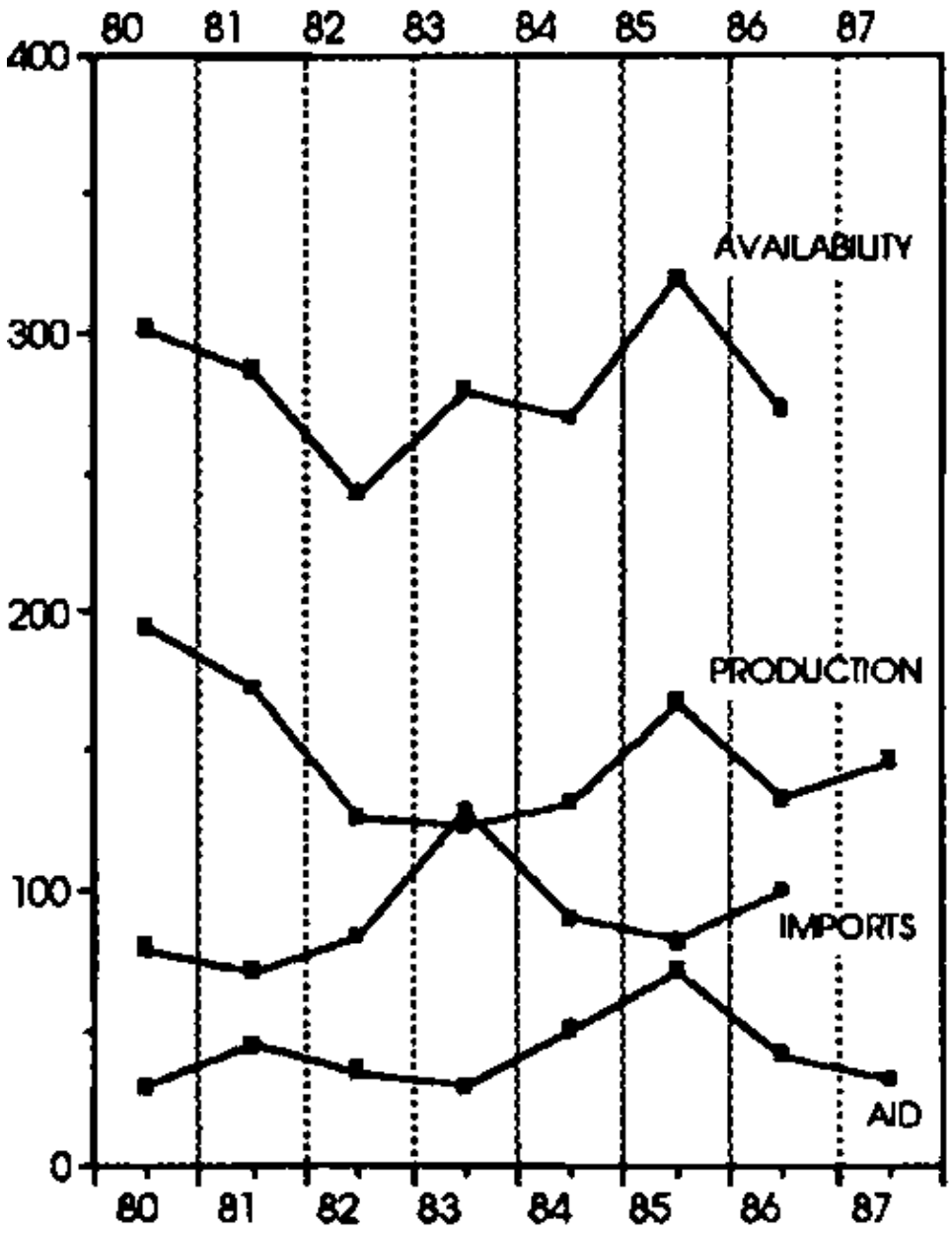




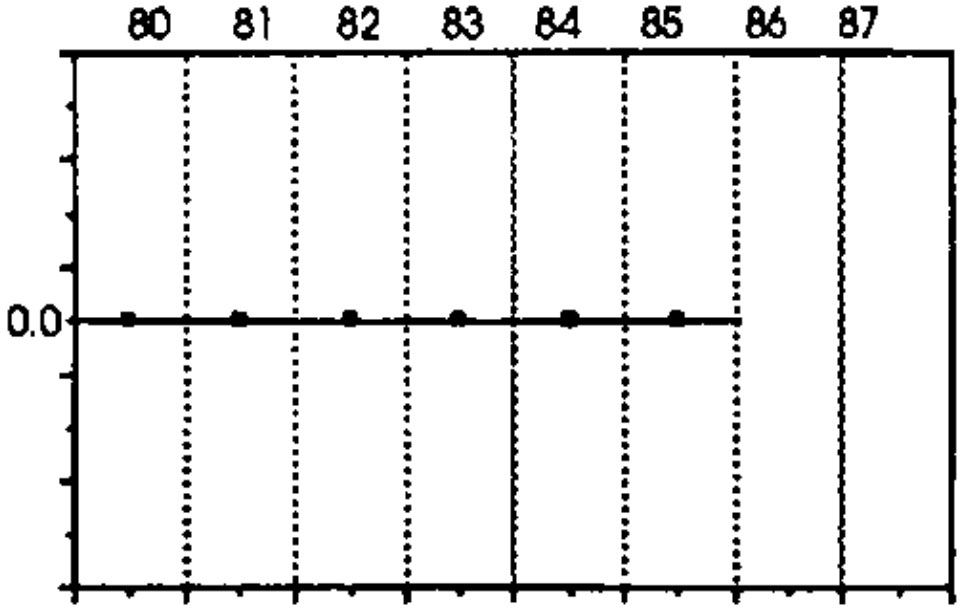
TRENDS IN UNDERWEIGHT CHILDREN



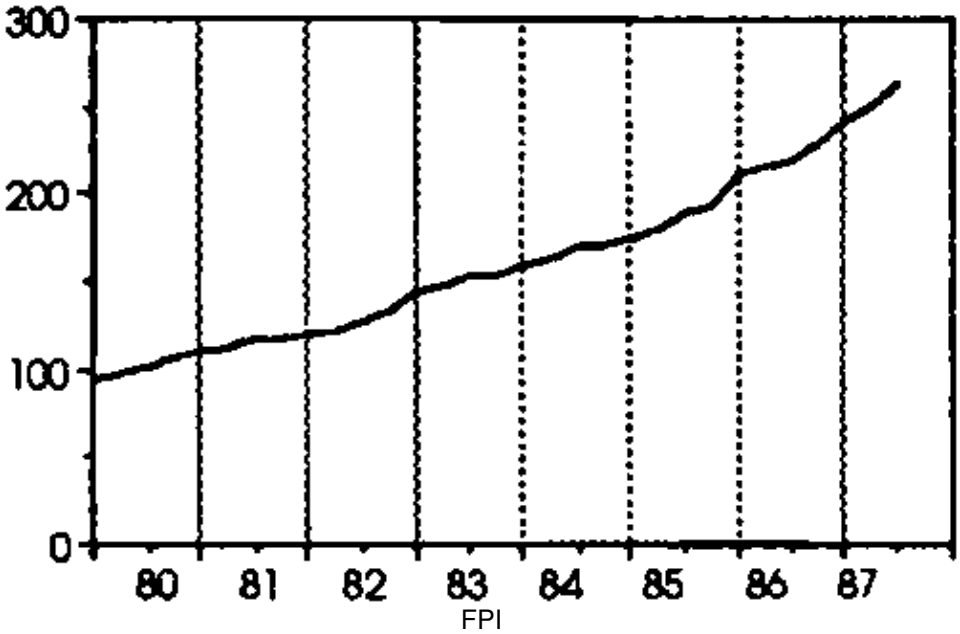
GRAPHICS



CEREALS (1,000 MT)

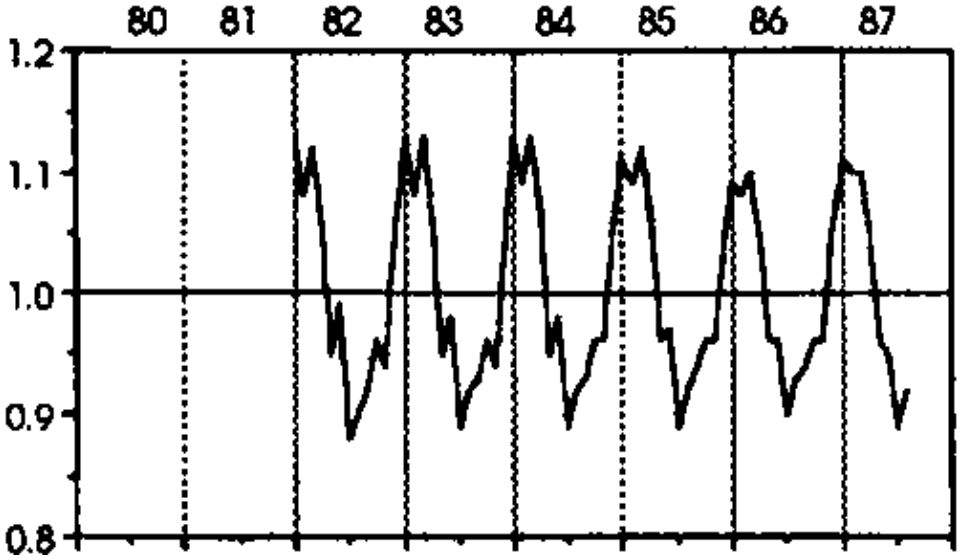


IMF CREDIT – (US $ MILLIONS)

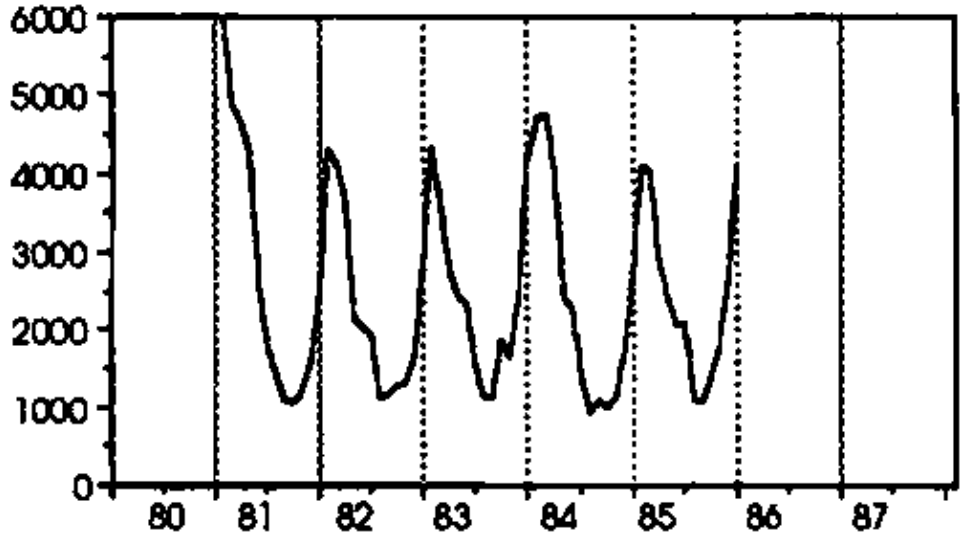


FPI

SEASONALITY



SEASONALITY FACTOR – Seasonal effects in percentage prevalence of underweight children



NUMBER OF CASES – Diarrhoea: monthly reported cases

Madagascar

Madagascar has had accumulating economic problems since at least the late seventies, periodically worsened by cyclones and localized drought. The political and financial system has been evolving, notably since the country's withdrawal from the Franc Zone in 1973 and reform of the fiscal system in 1978. In 1980 per capita debt was more than $70, and negotiations with bilateral financial supporters and the IMF secured loans to deal temporarily with accelerating budgetary and balance–of–payments problems. But in 1981 credit and investment continued to drop sharply, reducing needed imports including food (see Cereals:Imports). Food production (Cereals:Production) and GNP fell (GNP), and the debt burden increased rapidly (Debt). Food and consumer prices started a substantial upward trend, which is still continuing (FPI & CPI).

In 1982 a culmination of troubles beset Madagascar. Political uncertainty and unsettled debt negotiations hit living standards, and cyclones in January devastated rural production in many areas. Cereal (mainly rice) and overall food production (Cereals: Production & Food Production Index) were less than 1980–1981, and food availability was reduced (Kcals per day). Child nutrition data, available from 1982, show particularly high prevalences of underweight children in Madagascar of around 45–50% in clinics participating in CRS programmes, with marked seasonality matching the pre–harvest shortages with subsequent post–harvest recovery (harvest is April–May) (Underweight Children).

Structural adjustment, in particular policy changes related to the borrowing, took major effect in 1983. Consumer subsidies were cut and producer prices raised, and devaluation of the Malagasy franc continued, accelerating in 1982 (Exchange Rate). Public spending was reduced. The relative price of food (FPI/CPI) fluctuated markedly, but in general price rises slowed. Malnutrition prevalences showed a rise above the trend (Prev. Deseasonalized), possibly more in the urban (capital) area than elsewhere (Regional Prevalence), in line with changing producer–consumer price differentials. Nonetheless, production and food availability (Food Production Index & Kcals per day) rose a little in 1983.

But unrest in rural areas, then urban areas, spread in 1983 and 1984, associated with substantial migration from the countryside. Prices continued to rise and the currency to devalue; wages remained static; and although there was no acute food supply shortage, food available and consumed (Kcals per day) was estimated to decline again. By 1985 production was down, and food availability hit its lowest point.

Rice has a particular importance in Madagascar (having among the highest per capita rice consumption in the world), and control of the rice trade was considered a factor in economic problems – partly because of heavy rice imports. As part of the structural adjustment, most state control over the internal rice trade was abolished in 1986. At the same time, rural disruptions were continuing, and drought struck the southern part of the island badly affecting the harvest in early 1986 (notably for maize and cassava in the south–west).

Prevalences of malnutrition estimated from the CRS data showed an overall upward jump in 1986 (Prev. Deseasonalized). Comparing examples from the more urban area of the capital, Antananarivo, with the rural south (Tulear), it seems that nutrition deteriorated gradually in the capital area in 1985–86, but more sharply

in 1986 in the south (Regional Prevalence). Famines and food shortages in the rural south were reported in 1986–87 – in fact in October 1986 it was announced that some tens of thousands had died from famine.

Some recovery in the rural south in 1987 is indicated by the nutritional data, but malnutrition overall remains at the raised level of 1986 (Prev. Deseasonalized). The economic difficulties continued in 1987, with prices again rising sharply by the end of the year (FPI, CPI). (The falling FPI/CPI at end–87 is probably misleading since both indices were rising so fast). Total 1987 cereal production was up on 1986's. Despite a renewed drought in the south–west which threatened the harvest, FAO reported an above average output of paddy rice for 1988, although short of total consumption requirements. Logistical problems in delivery had resulted in some supply problems in the south of the island during the latter part of the year.

Major shifts in government policies related to the national staple, rice, were included in the agreement with the IMF. The policy changes included major cut–backs in the level of rice importation. The over–valued Malagasy franc and the collapse of the internal distribution network made it more attractive to import rice than purchase local supplies. Government price controls on the consumer price of rice were gradually removed, thus legitimizing the already flourishing parallel market in rice. Farmgate prices were increased to stimulate production.

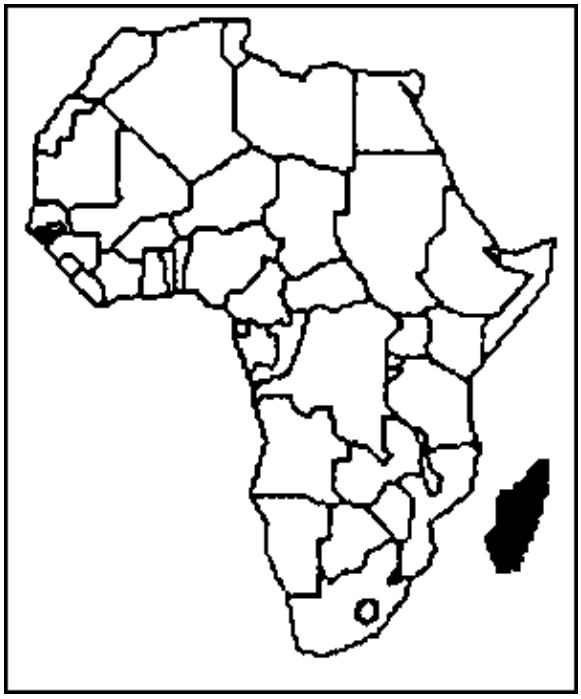
The Malagasy government also agreed to phase–out the distribution of rice, from the government–supported urban outlets, by 1990. Neighbourhood shops provided basic commodities such as rice, soap, and cooking oil, at subsidized prices. All urban dwellers were eligible to participate. There was a government–stipulated daily allocation; in reality, distributions were carried out two or three times per week, usually with a ration considerably below the approved level. It was argued that government policies had encouraged the Malagasy people to consume rice at a level that the country could not presently support. The demand for other low–priced staples such as maize and cassava may have been kept low because of the rice subsidy. The system was costly for the rice–growing farmer and the government.

Large increases in the market price of rice, in the urban areas, following the removal of price controls, led several donors to establish a reserve buffer stock. A portion of the stocks was to be released on the market when the price exceeded an agreed upon trigger price. When the price fell below the trigger level, allocations from the reserve were discontinued. This system first operated in 1987. It was a significant attempt to protect the urban consumer from some of the negative effects of the adjustment program. The buffer stock only controlled rice prices, and it did not attempt to target by need. Its impact on nutritional levels has yet to be studied.

A consistent seasonal trend in child underweight prevalences is evident from 1982–87. Malnutrition levels peak from October to February–March, the pre–harvest "hungry" season; improvement usually begins in March, and continues through the June–August post–harvest period. Seasonal differences in prevalence are often as high as eight to ten percentage points.

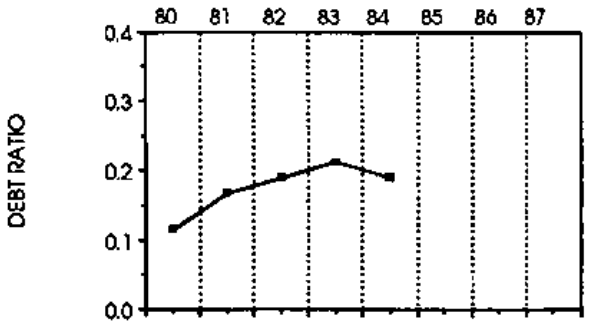
CRS program coverage increased in 1985 and 1986. It was possible that the time trends in prevalence resulted from changes in coverage, however, statistical modelling has indicated that observed trends remain significant after taking account of this increased coverage.

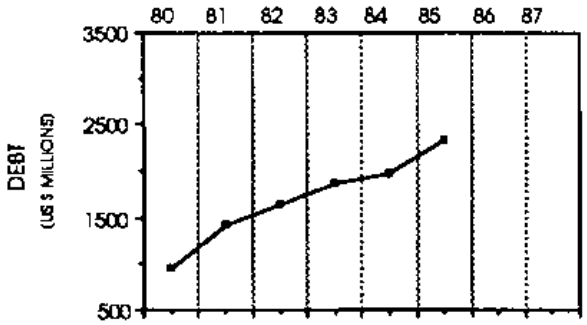
MADAGASCAR

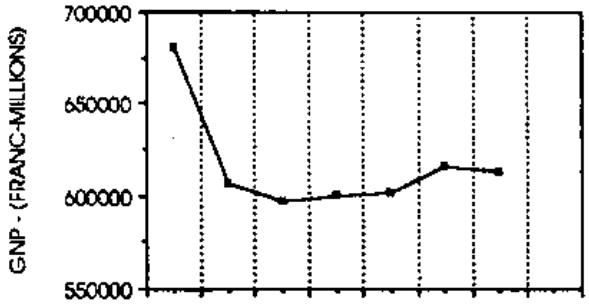


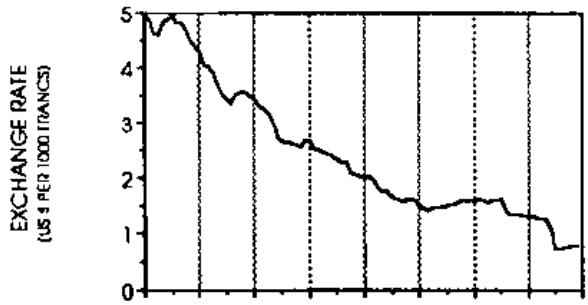
POPULATION: 10.9 M	IMR: 121
POPULATION DENSITY: 18 per sq. km.	U5MR: 187
POP. GROWTH RATE: 3.3% per annum	GNP (PER CAPITA): US$230
PERCENTAGE URBAN POP.: 23%	ESTIMATED PREVALENCE LEVEL UNDERWEIGHT CHILDREN: 15% –25%

ECONOMIC INDICATORS

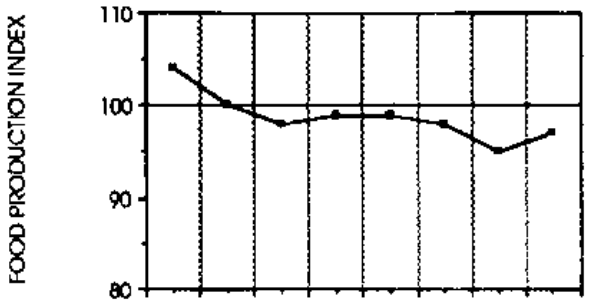


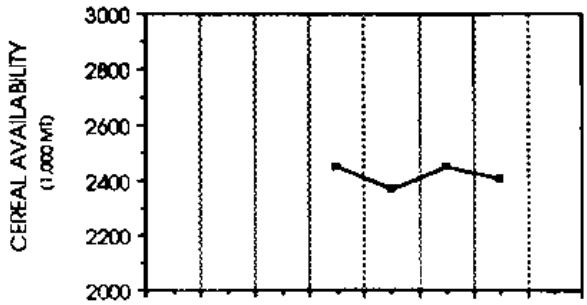


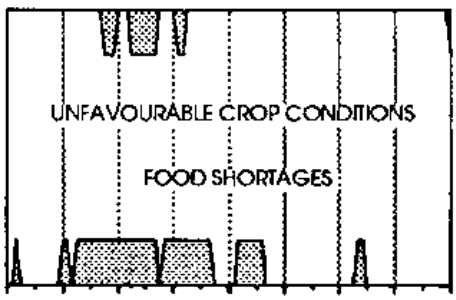


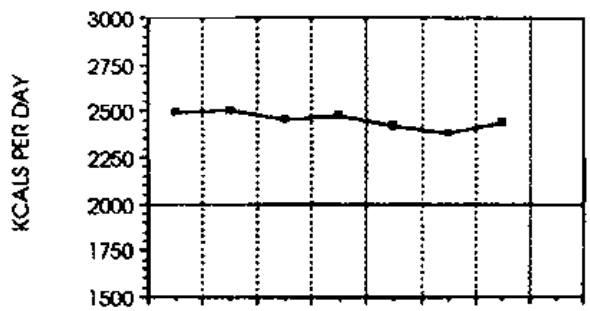


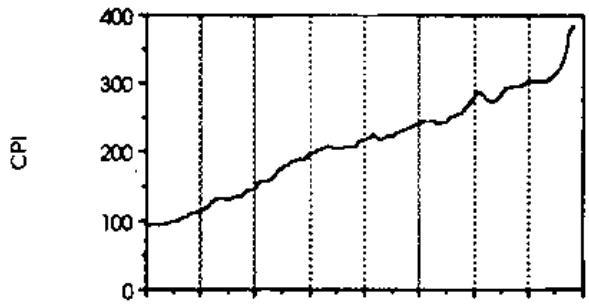
FOOD INDICATORS

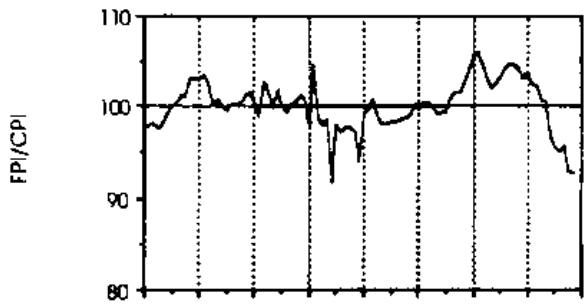




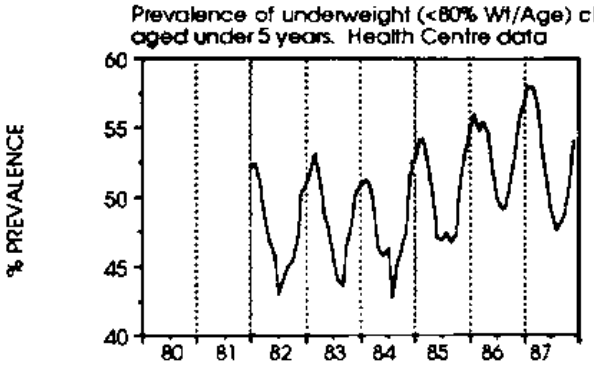


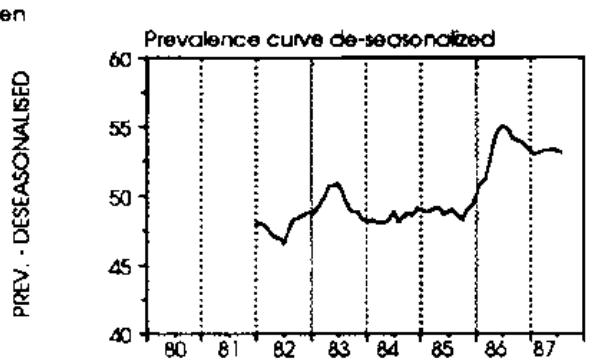




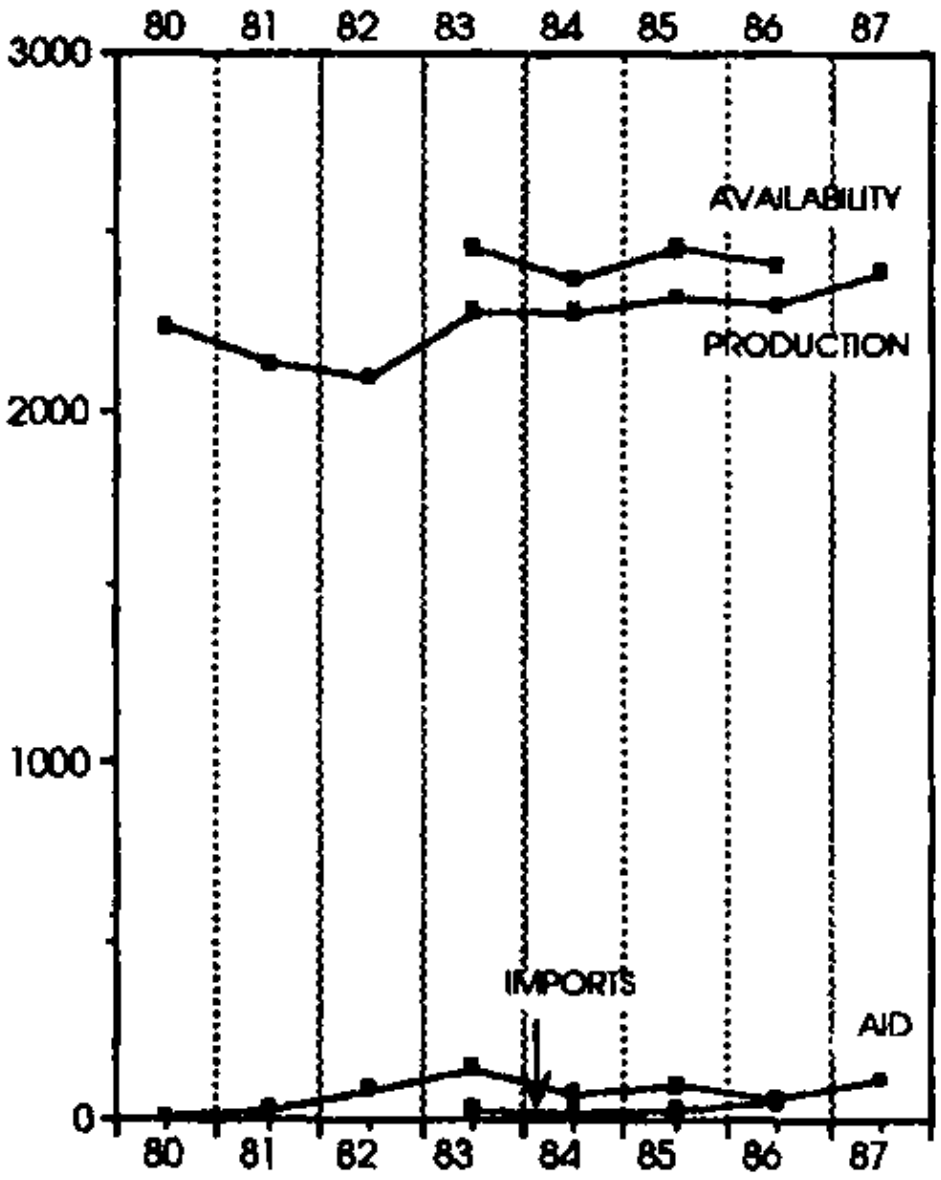


TRENDS IN UNDERWEIGHT CHILDREN

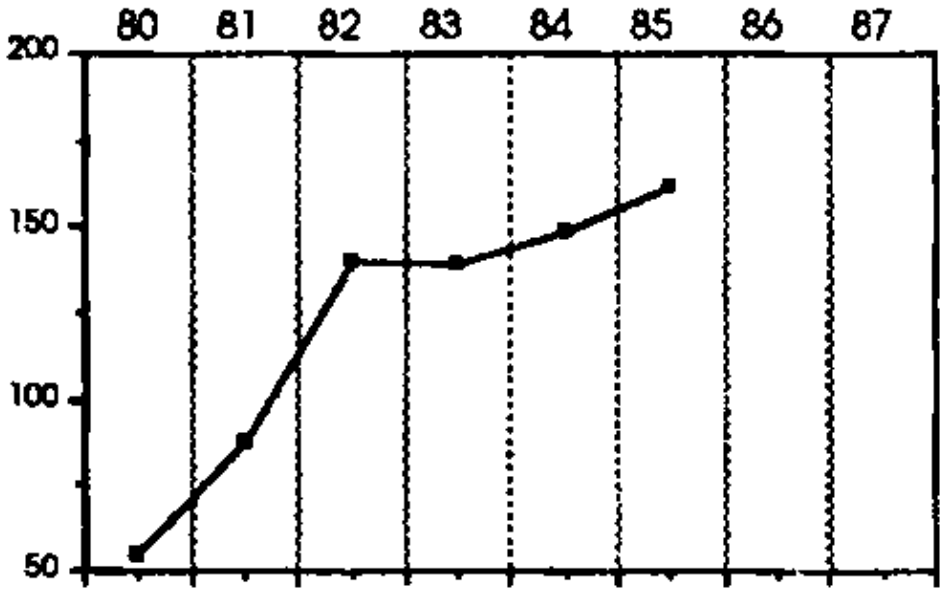




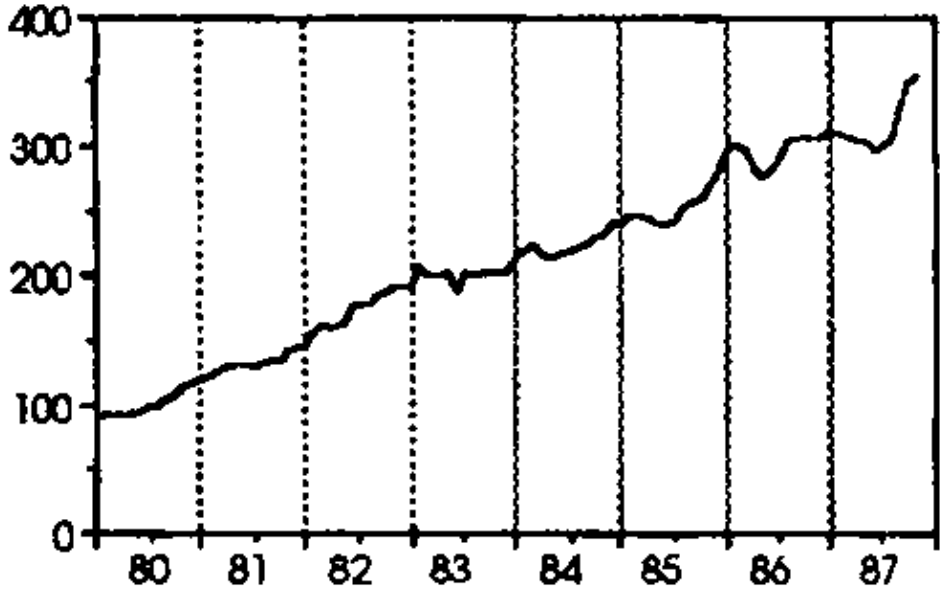
ADDITIONAL FOOD & ECONOMIC INDICATORS



CEREALS (1,000 MT)

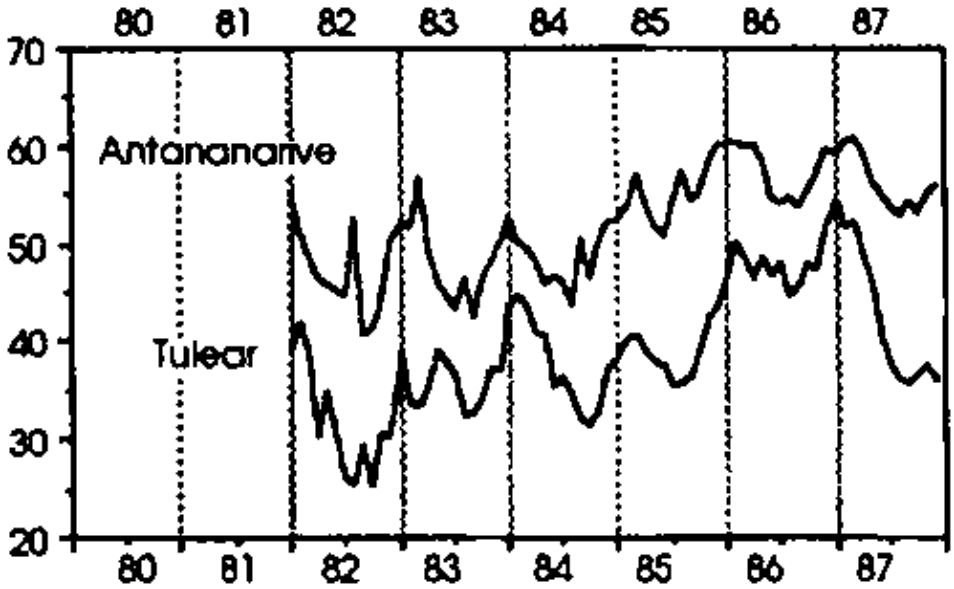


IMF CREDIT – (US $ MILLIONS)

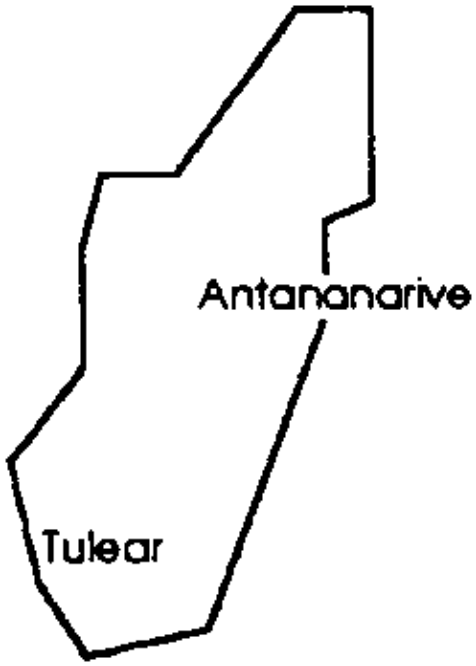


FPI

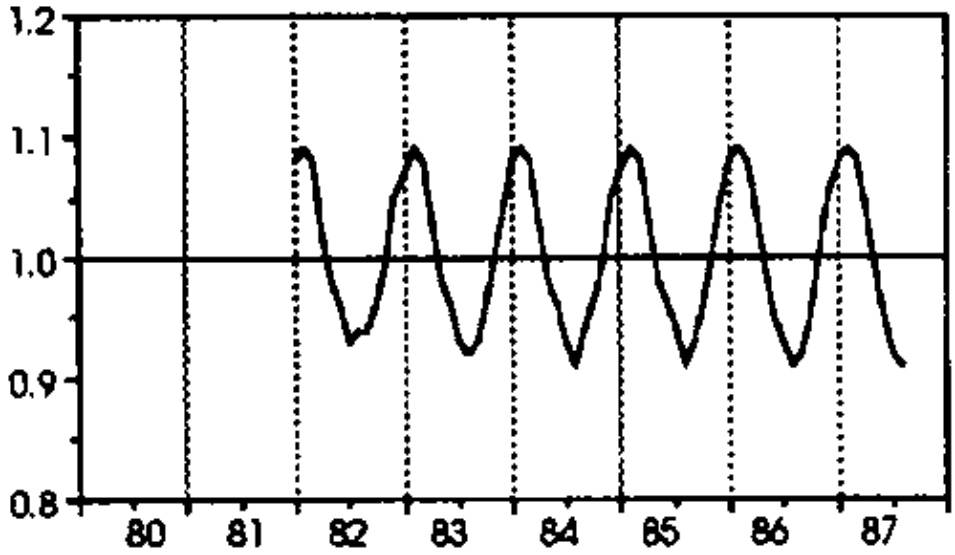
TRENDS IN REGIONAL PREVALENCE



% PREVALENCE – Prevalence of underweight (<80% Wt/Age) children aged under 5 years. By Region. Health Centre data.



SEASONALITY



SEASONAL FACTOR – Seasonal effects in prevalence of underweight (National)

Mali

With 1.24 million sq. km., Mali is the second largest state in West Africa. The estimated (mid–1987) population is 8.6 million, with an annual growth rate of 2.3%. The inhabitants are 10% nomadic, 19% urban and 71% rural. Average population density is low at 7 persons per sq. km. The Niger river plays a similar role in Mali as does the Nile in the Sudan. Most agricultural and economic activity in the country is associated with the river. Rainfall is limited. In the south of the country it amounts to 1,120 mm per annum on average, delivered during a 4 – 5 month rainy season. The north of the country –comprising about 50% of the land area – is semi–desert, with an average of below 250 mm rainfall per annum. The country is landlocked and goods have to travel around 1,300 km. to and from port.

After independence in 1960, the first civilian government was socialist and embarked on an extensive nationalization programme. In 1968, in the midst of severe economic problems, the army took over. Efforts were initiated to reverse the nationalization of the economy which had already taken place, particularly in the public sector which had expanded rapidly. However, this proved to be difficult to accomplish. The protracted drought in the 70's inevitably contributed substantially to the depression of the economy.

By 1981, and with the financial backing of Western governments, moves were well afoot to introduce a free market style economy. The poor rainfall in the early eighties, followed by the severe drought in 1983 and 1984 (see Food Shortages & Unfavourable Crop Conditions) prevented any significant recovery of the economy. Mali remains one of the poorest nations in Africa today, with a per capita GNP of US$ 180, and an estimated under–5 year's mortality rate of 296 – the highest in Africa and one of the highest rates in the world.

Agriculture

Over 80% of the labour force is engaged in agriculture and fishing. This percentage is diminishing as the effects of drought and low prices for agricultural produce encourage a move to urban centres. Normally self–sufficient in staple foods in years of adequate rainfall, Mali has been heavily dependent on cereal imports (Cereals: Imports) and cereal aid (Cereals: Aid) to compensate for poor production during 1984 and 1985 (Food Production Index & Cereals: Production). The important livestock herds were reduced by 50% as a result of the drought. With improved rains in 1985, there was an upturn in production, although this was again reversed in 1987. After the sharp drop in 1984, cereal availability (Cereal Availability) peaked in 1985 as a result of a reasonable harvest and emergency commercial and food aid imports. Per capita calorie availability had been rising throughout the period from 1981 to 1985, although starting from a very low base of 1,720 kilocalories per capita per day (Kcals per day).

1988 has been confirmed by FAO as a record crop year. Following early rains, planting was underway in the south–west by late May. Planted area was up by 5%. However, prospects became less optimistic following the heavy infestation by desert locusts of the Niger Delta. Extensive control operations were implemented, and these were largely successful. Crop damage was confined and did not seriously affect the aggregated harvest outrun. Serious local food deficits did occur in many northern areas and stocks were distributed, with

donor assistance.

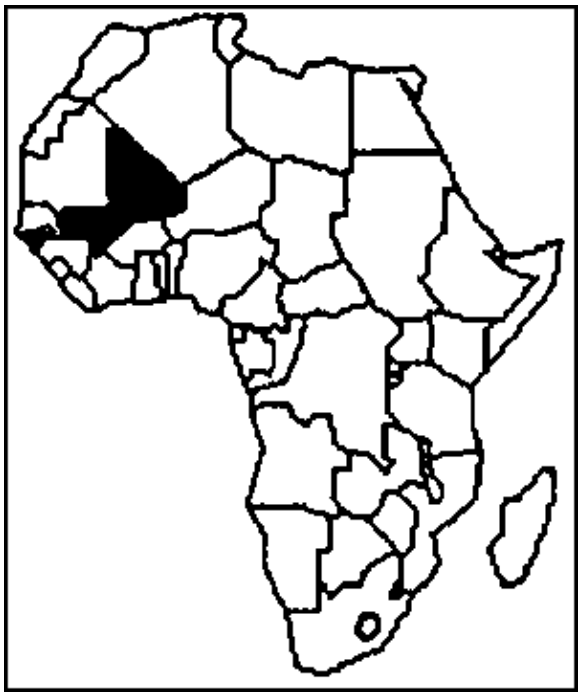
The Economy

The economy is severely constrained by the large and growing foreign debt (Debt) which doubled between 1980 and 1985, and by the country's ability to service it (Debt Ratio). The contraction in trade resulting from the impact of the drought on agricultural and livestock exports, and the fluctuating international price for cotton, has been responsible for the very high trade deficit. In consequence, 1985 saw a significant jump in the already climbing debt–service ratio (Debt Ratio). The GNP fell overall between 1980 and 1985. The 1986 figure, in keeping with the better production figures, represented a marginal improvement on the previous years. Use of IMF credit has been rising steadily during the first half of the decade (IMF) and in 1986 France provided 1,000 million CFA francs in support of the structural adjustment programme undertaken with the assistance of IMF and the World Bank. Mali obtained a re–scheduling of its debts in 1987, but its IMF standby facility expired early in 1988. Further institutional financial assistance has been made contingent on fiscal and budgetary adjustment.

Nutrition

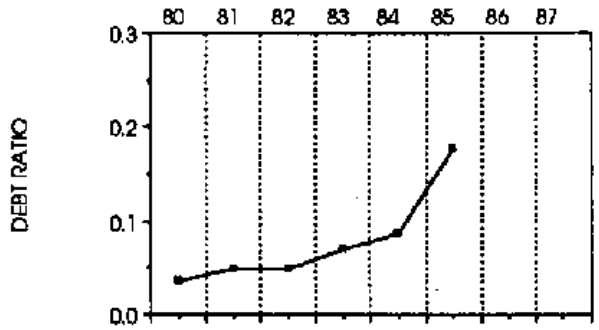
No nationally representative or time series data are available on nutritional status in Mali for the early 1980's. A number of small local surveys have been conducted periodically by NGO's, which are not directly comparable. Data for the middle '70's indicate a prevalence of wasting of 4%–11%, depending on year and season (Wasted Children). Some indication of the current level of the problem may be had by quoting the results of a survey undertaken by Medecins sans Frontieres in collaboration with the Ministry of Health. The results (Wasted Children) relate to Timboctou for July 1986 and show the prevalence of wasting. The most severely affected are those between 5 and 23 months. These percentages are high, especially for a non–drought year, and give cause for continuing concern.

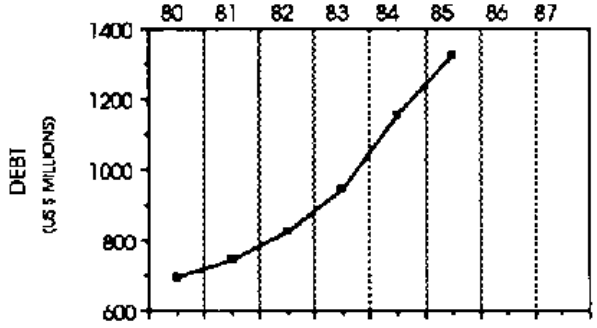
MALI

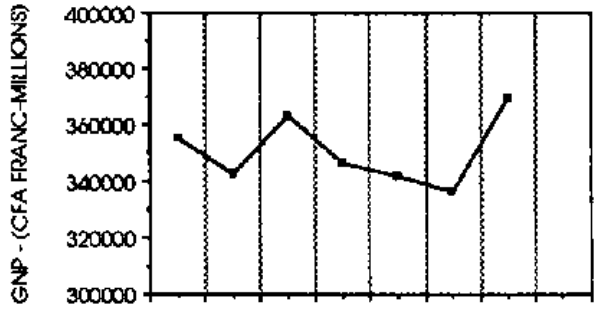


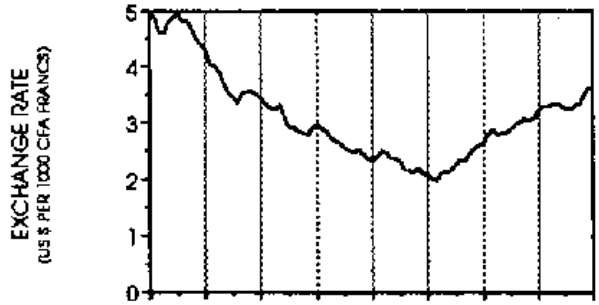
POPULATION: 8.6 M	IMR: 170
POPULATION DENSITY: 7 per sq. km.	U5MR: 296
POP. GROWTH RATE: 2.3% per annum	GNP (PER CAPITA); US$180
PERCENTAGE URBAN POP.: 19%	ESTIMATED PREVALENCE LEVEL UNDERWEIGHT CHILDREN: 25% – 35%

ECONOMIC INDICATORS

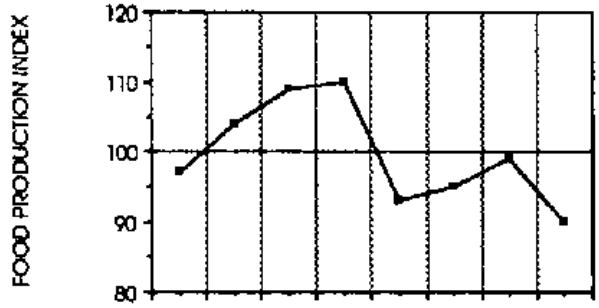


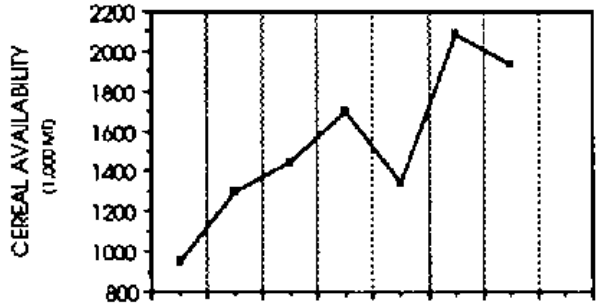


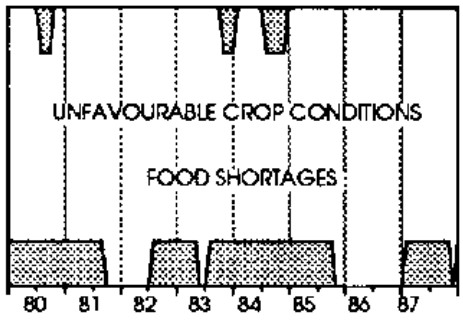


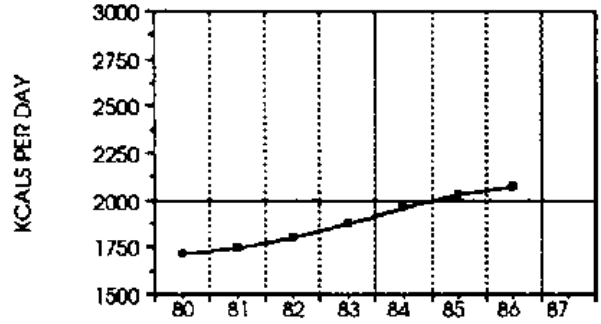


FOOD INDICATORS









CPI

NOT AVAILABLE

FPI/CPI

NOT AVAILABLE

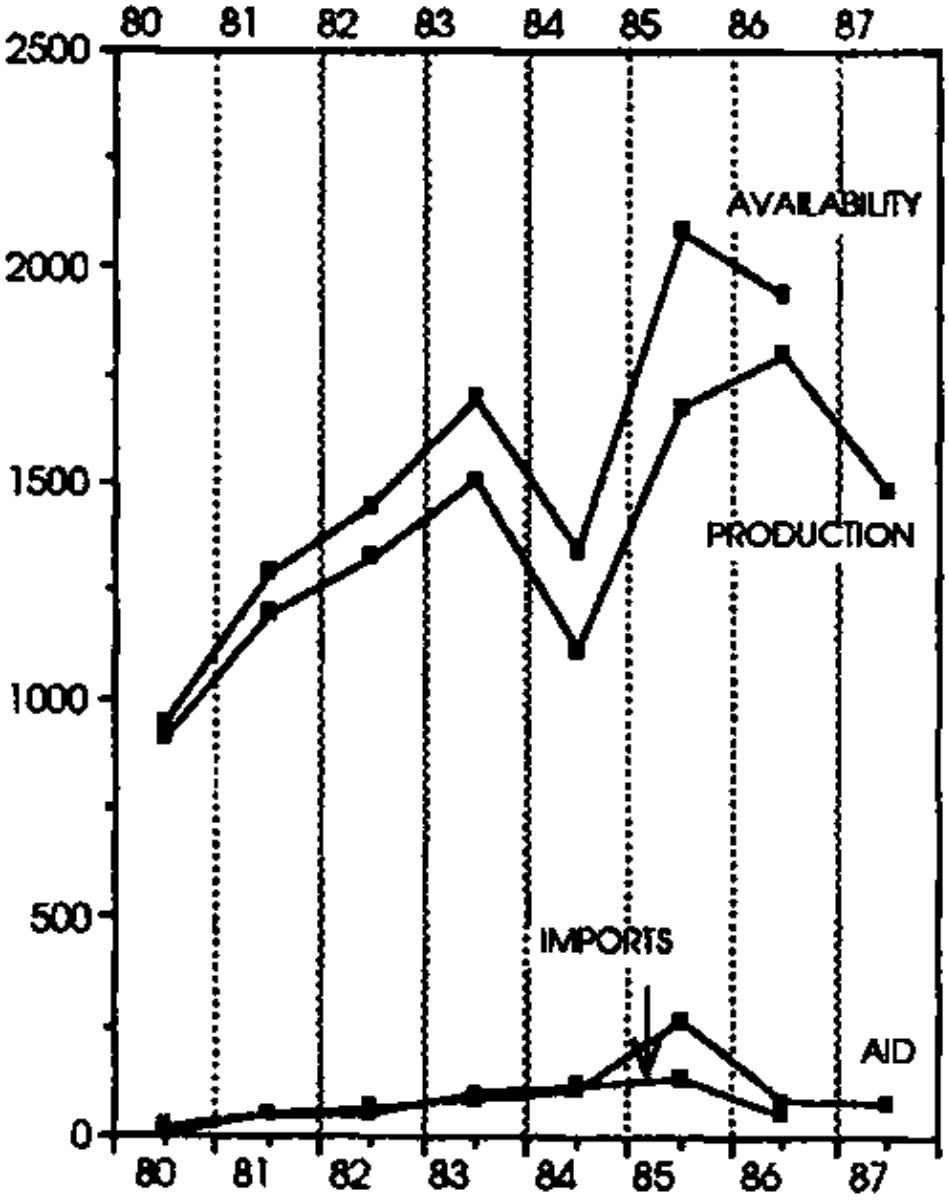
WASTED CHILDREN

% PREVALENCE

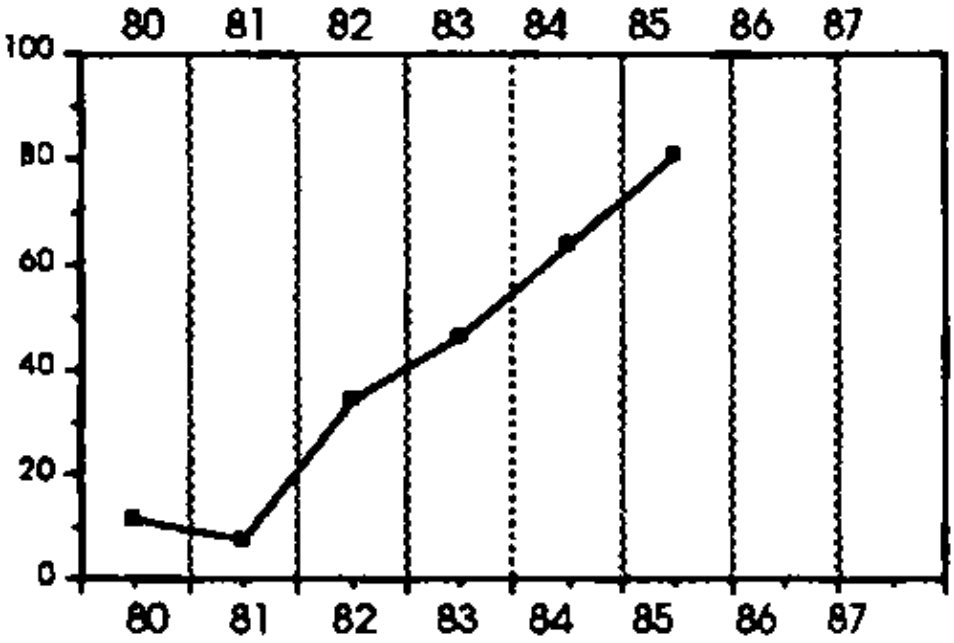
SEE OVER

GRAPHICS

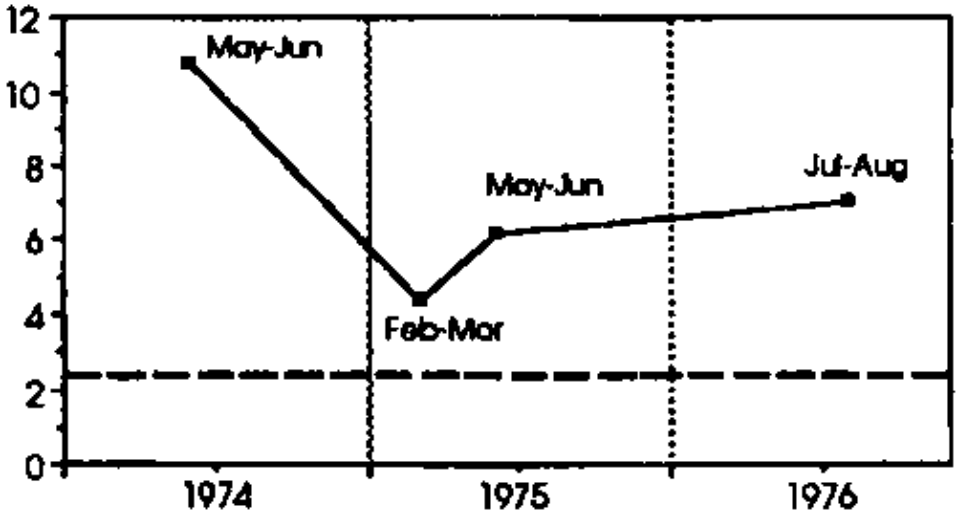
ADDITIONAL FOOD & ECONOMIC INDICATORS



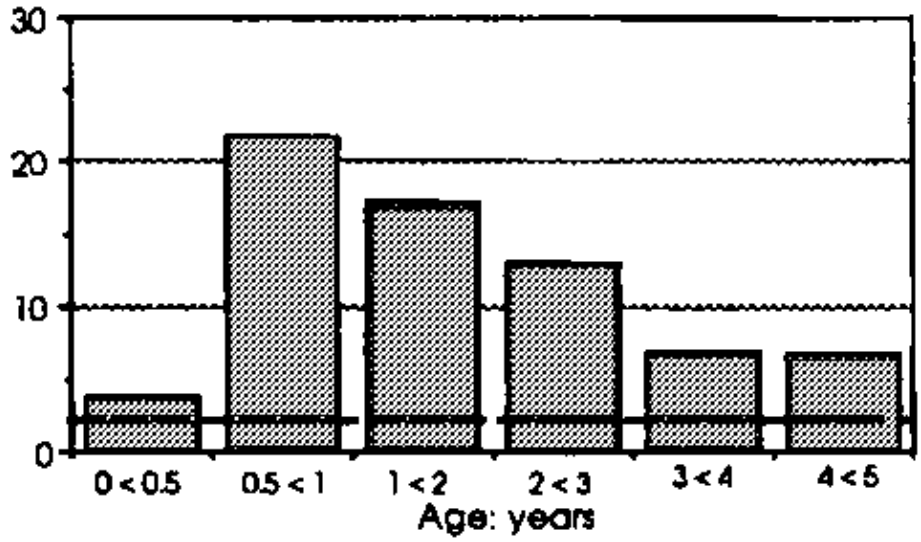
CEREALS (1,000 MT)



IMF CREDIT – (US $ MILLIONS)



% PREVALENCE – Prevalence of wasting (<80% Wt/Ht) in children aged 6–71 months: 1974–76.



% PREVALENCE – Prevalence of wasting (< –2 S.D. Wt/Ht) in children aged under 5 years in Timboctou, July 1986

Mauritania

The average population density of Mauritania is only around 2 inhabitants per sq. km. – the lowest for West Africa. Population is estimated to be increasing at the rate of 2.6% per annum. Around one sixth of the population are nomadic. As a result of the droughts during the seventies and again in the eighties, there was substantial movement away from the rural areas to the urban. Just over one third of the population now live in towns.

The northern two thirds of the country is classed as Saharan, with very low rainfall. The remaining third – the Sahelian zone –has an average of 600 mm rainfall per year. During the early eighties rainfall was under 30% of the average of the preceding 3 decades, and Saharan conditions began encroaching on the more fertile Sahelian.

The Economy

Since independence in 1960, Mauritania had several changes of government and been involved in a war (between 1976 and 1979) over the formerly Spanish 'Western Sahara'. The take over of 1984 deposed the civilian government established at the end of 1980. There followed a number of major economic reforms which attracted new investment and bilateral support. The 1960's had seen a rapid expansion of the economy as a result of the exploitation of the country's mineral resources. Growth fluctuated widely during the '70's as a

consequence of the war and the drought experienced in first half of the decade, however, by the late 1970's economic growth was impressive. Unfortunately, within a few years the economy had begun to contract. As in the previous decade, the drought during the early '80's (see Food Shortages & Unfavourable Crop Conditions) was partially responsible for poor and uneven growth (GNP). This was aggravated by the high level of foreign debt (Debt) which jumped from US$700 million in 1980 to just under US$1400 million in 1985, although, during this time, the debt service ratio remained reasonably steady (Debt Ratio).

Mauritania had reached agreement with the IMF in 1980 to restrain budget spending and to increase revenues. The budget deficit subsequently fell in 1982 and 1983, but rose again in 1984 as a result of the rising cost of servicing the foreign debt (Debt Ratio) and the impact of the drought. Debt re–scheduling was necessary in 1985, '86 and '87. The IMF required a currency devaluation in 1984 (Exchange Rate). A further substantial adjustment of around 16% took place in 1985 before stabilizing. From the early to mid–1980's, the CPI rose by nearly 60% – with a sharp upturn following the '84 devaluation (CPI). FPI are unavailable beyond early 1982 (FPI) but it can be seen that in late 1980 the index jumped by about 13 points, as did CPI.

Agriculture

Although the agricultural sector accounts for over half of the workforce, its contribution to GDP has decreased substantially since the '60's – from 44% to around 11%. This reflects decreasing production by virtue of drought and the increasing importance of mineral resources to the economy. By 1982/'83 only some 10% of domestic demand for food could be met with local production, falling dramatically from the 1980 level. There was no sign of an overall recovery by 1987 (Food Production Index), although cereal production was on the upturn by 1985 (Cereals: Production). To compensate for poor domestic production, cereal imports (Cereals: Imports) and cereal aid (Cereals: Aid) were high during the drought period. Correspondingly, cereal availability (Cereal Availability) and food availability (expressed as Kcals per caput) show positive trends over the same period, with brief reversals in '82 and '84. Assessment of cereal–crop prospects for 1988 (the harvest period is Oct./Nov.) following an on–the–ground inspection by FAO staff indicates a record harvest. This may need to be revised depending on the damage caused by a recent heavy infestation by desert locults. FAO also reports that the country still found it necessary to import half its cereal consumption requirements for the period from Nov. 1987 to Ovt. 1988.

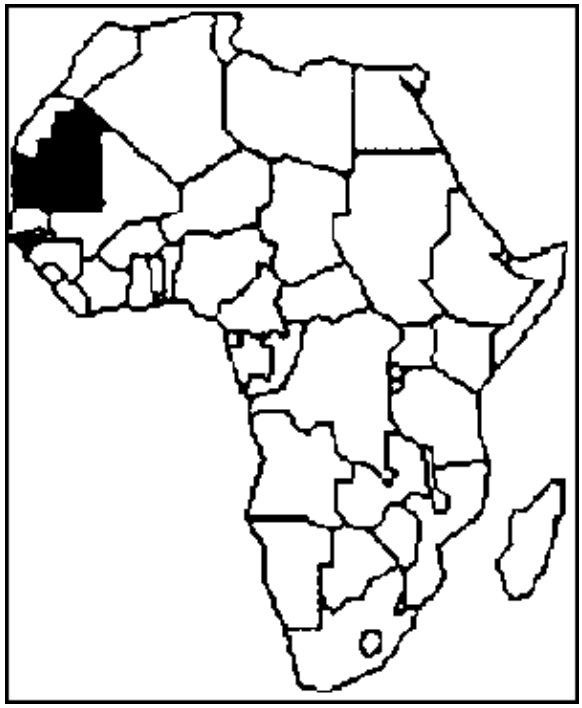
Nutrition

Prevalence of malnutrition as measured by percentage less than 80% reference weight–for–age is available for the capital Nouakchott from Catholic Relief Services. These are shown for December 1986 through to February 1988 (Underweight Children). The range is narrow – between 29% and 32%. While the span is too short for any definitive assessment, there would appear to be evidence for some seasonality, with prevalence peaking in August immediately prior to the harvest.

Warrack–Goldman et al., report levels of wasting (based on < 80% median weight–for–height of NCHS reference) in under fives ranging from 8.2% to 17.1% (Wasted Children) for 3 regions of the country during the drought year of 1983[1]. This was considered a significantly higher prevalence than that recorded during the drought in the early seventies. The authors also reported that between one quarter and one third of the children examined were stunted; concluding that the problem of malnutrition was not only immediate but also chronic.

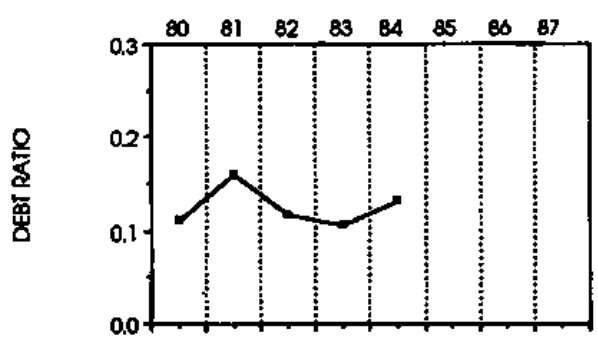
[1] Warrack–Goldman, H., Brown, B.H., Binkin, N.J., 1986. Nutritional Status of Mauritanian Children During a Drought Emergency. Ecol. Food & Nutr., Vol 18, pp221–229.

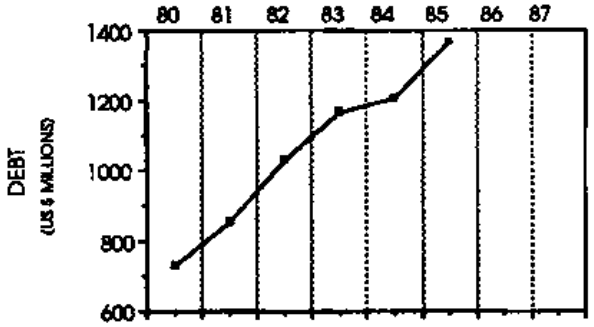
MAURITANIA

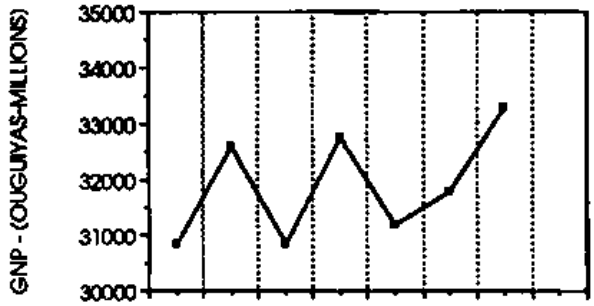


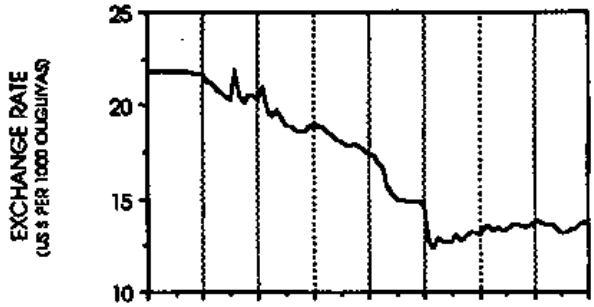
POPULATION: 1.9 M	IMR: 128
POPULATION DENSITY: 2 per sq. km.	U5MR: 223
POP. GROWTH RATE: 2.6% per annum	GNP (PER CAPITA): US$420
PERCENTAGE URBAN POP.: 38%	ESTIMATED PREVALENCE LEVEL UNDERWEIGHT CHILDREN: 20% – 30%

ECONOMIC INDICATORS

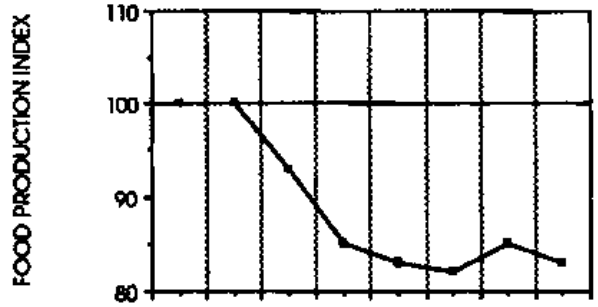


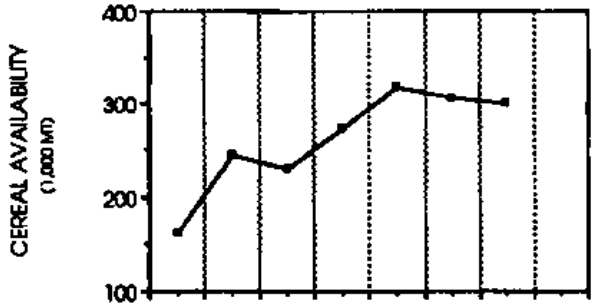


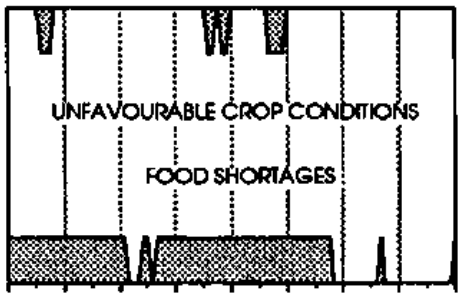


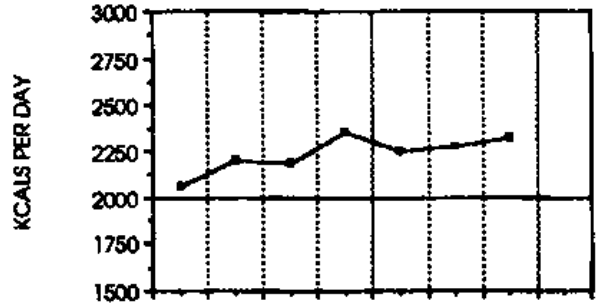


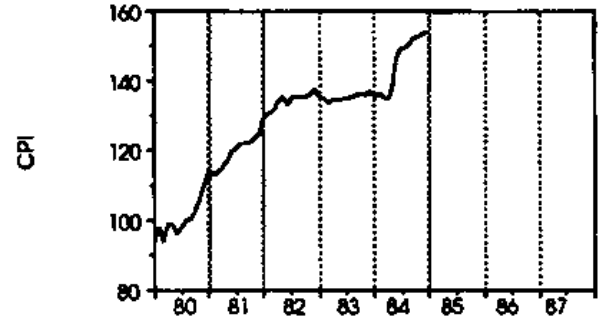
FOOD INDICATORS

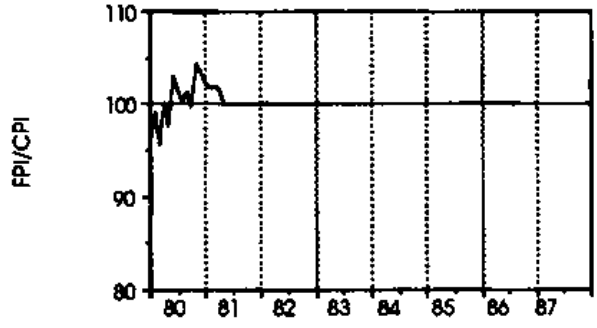




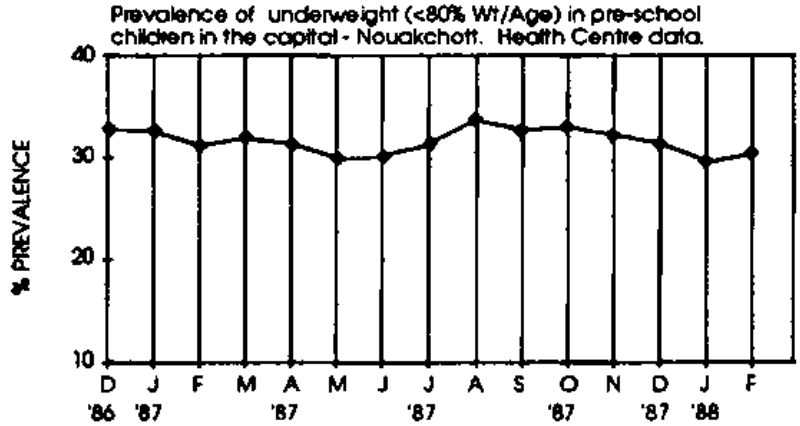




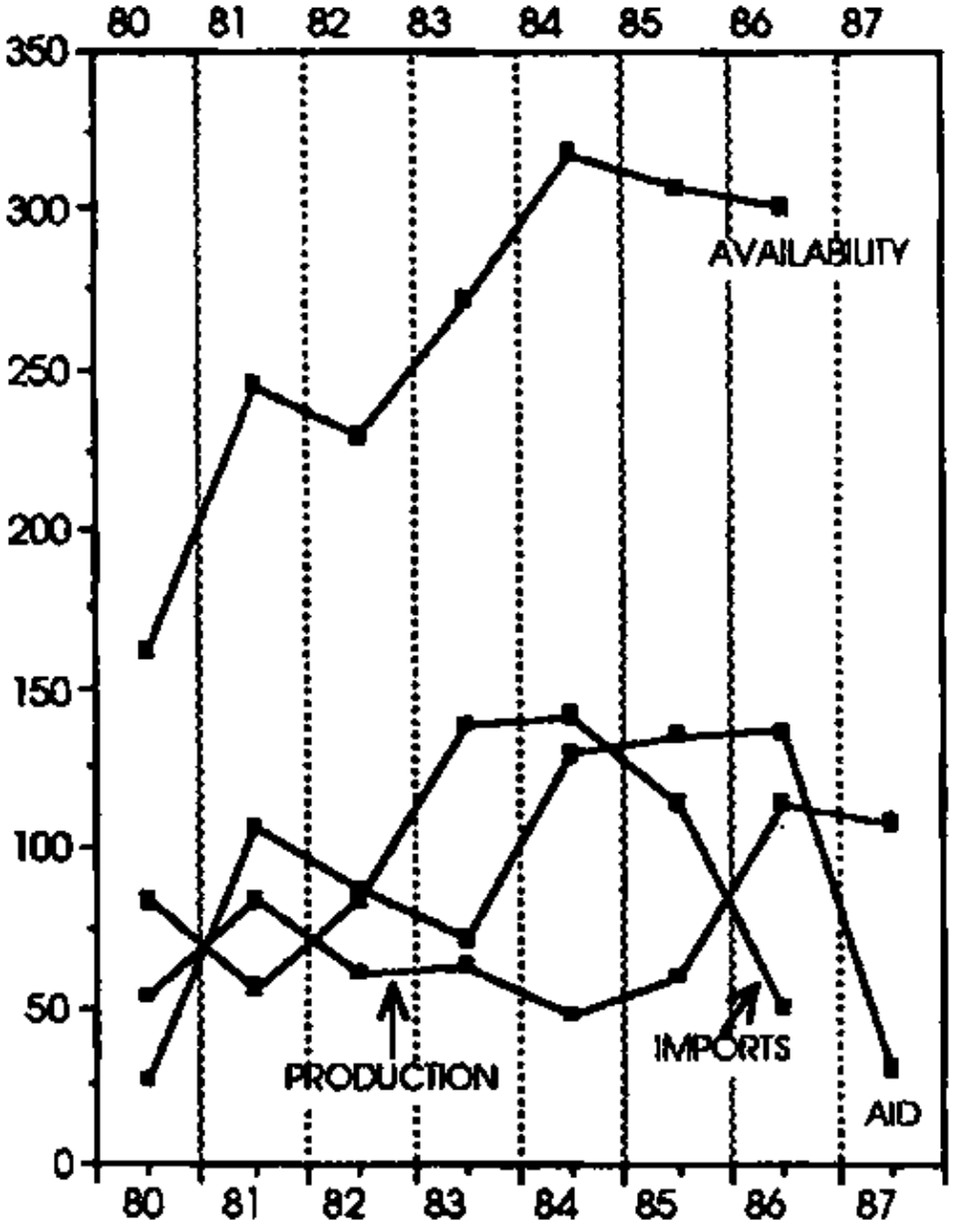




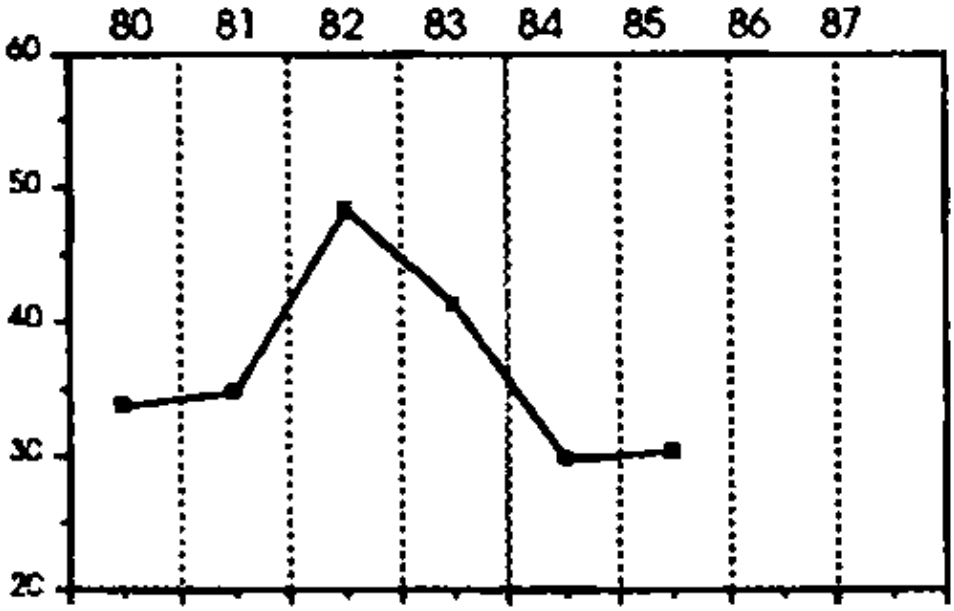
TRENDS IN UNDERWEIGHT CHILDREN



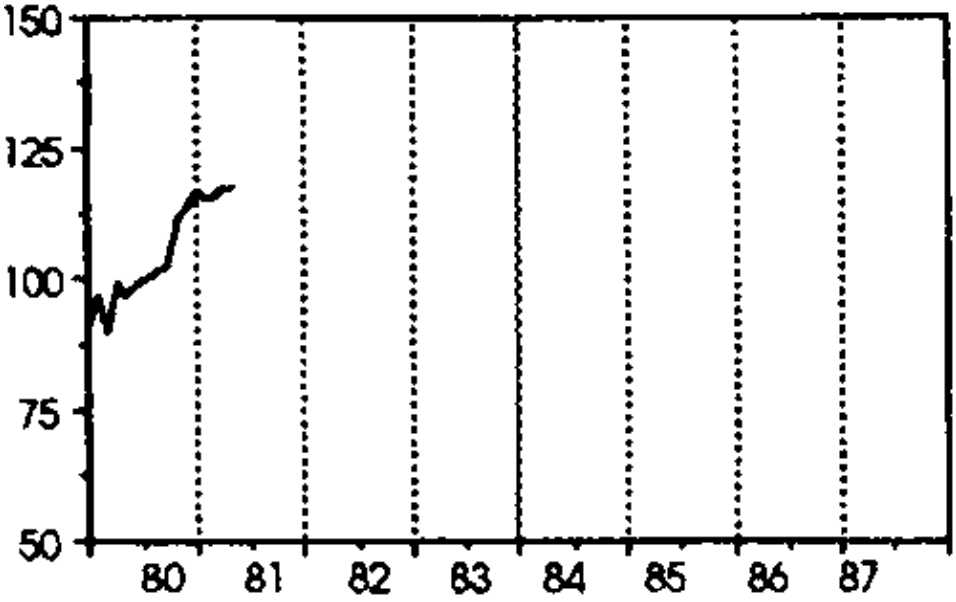
ADDITIONAL FOOD & ECONOMIC INDICATORS



CEREALS (1,000 MT)

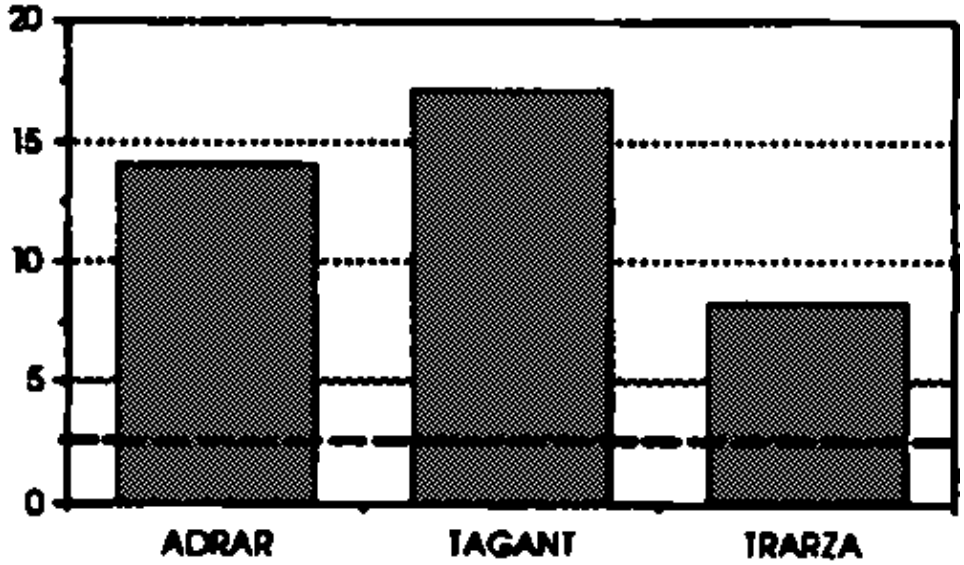


IMF CREDIT – (US $ MILLIONS)



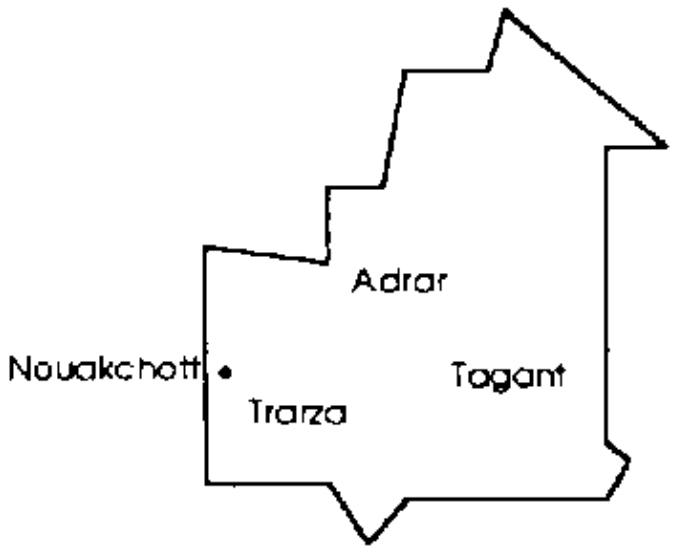
FPI

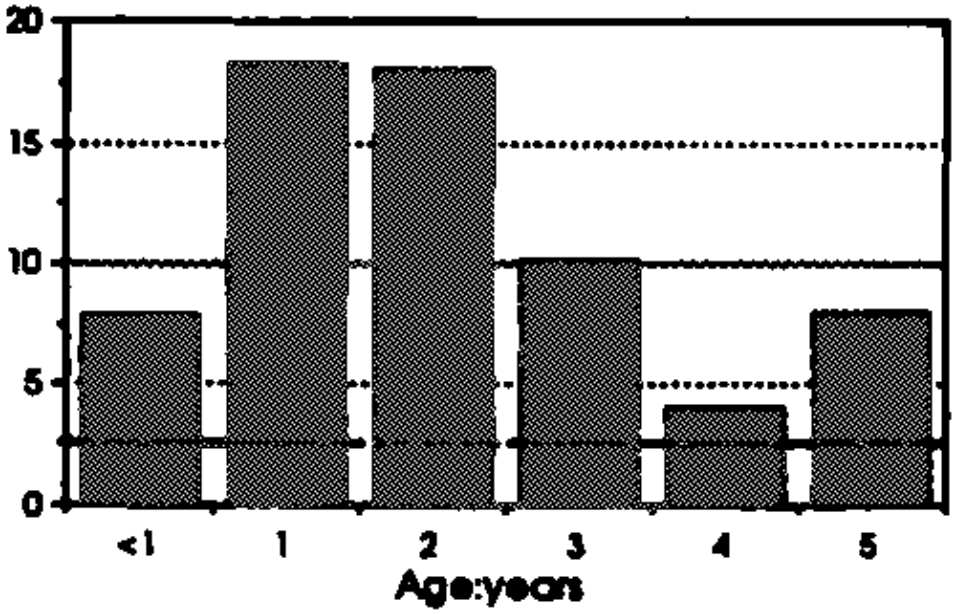
WASTED CHILDREN



% PREVALENCE – Prevalence of wasting (<80% Wt/Ht) in 3 regions in children aged 6 months to 5 years.

1983





% PREVALENCE – Prevalence of wasting (<80% Wt/Ht) in children aged 6 months to 5 years, by age group.
1983

Niger

Niger is located in the heart of the Sahara Desert. The north–eastern region is almost uninhabited, while the central area of Agadez receives only 180 mm of rain during two months. Further south in the Sahel region, along the Nigerian border, enough rain falls to cultivate groundnuts and millet. Moving west towards the south–western corner, the climate changes again with seasonal flooding followed by nine months of drought. This is where most of the population, and the capital, Niamey, is located.

Agriculture

It is believed that Niger was one of the most severely affected countries as a result of the 1984 drought, and this is reflected in all indicators of production. Food production (see Food Production Index) and total cereal production (Cereals: Production) plummeted in 1984, causing a decline in food availability (as Kcals per day). A prolonged food shortage was reported starting in 1983 with the harvest period in September, and continuing through to November 1985 (Food Shortages). The response to this crisis showed cereal imports increasing by 300% (Cereals: Imports), and cereal aid (Cereals: Aid) by a factor of 17 from 12,900 to 221,300 MT. However, this relief did not peak until 1985, when production had already increased by the end of the year with the return of the rains in August. Excellent growing conditions were also reported in 1986, but the 1987 harvest

declined by 20% from the previous year and donor assistance was requested. Kcal availability reflected this reprieve from the drought showing an improvement after 1984 and continuing through 1986, however following the poor harvest of 1987, energy availability would be expected to have declined again. Food aid requirements for 1988, as estimated by FAO at the end of 1987, were some 350% of normal. This situation has been reversed dramatically following the above normal and well distributed rains during 1988, which has resulted in a record cereal harvest in November 1988.

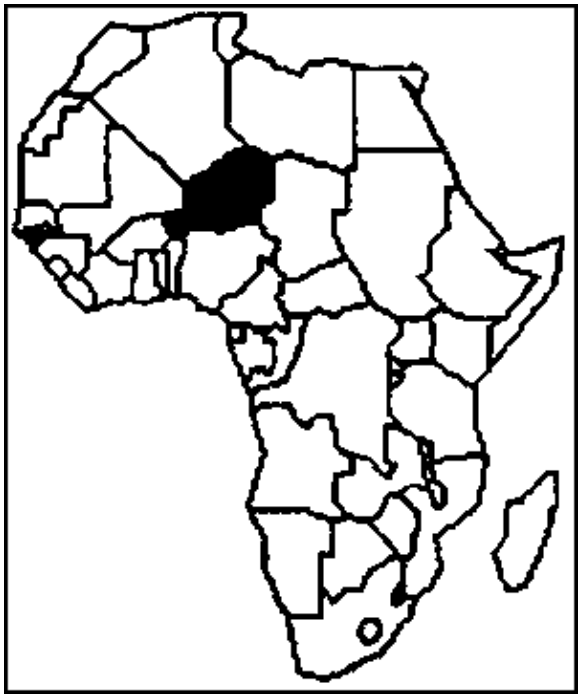
The Economy

Traditional farming and livestock raising contribute about one third to the GDP, and by the end of the seventies the contribution of mining had increased to 13% (1980) with the production of uranium. The trend in GNP showed a downturn in 1982, which continued to decline until 1984 (GNP). The fall in uranium prices in 1980/81 triggered a decline in production which likely had a major influence on the downward trend in GNP in the early '80's. Exports in Niger are only partly recorded, but a substantial trade existed with the export of livestock to Nigeria. This was disrupted in 1984/85 with the temporary closing of Nigeria's land borders. Prior to this, in 1975 uranium accounted for two−thirds of all export earnings, with the latter reaching a peak in 1980. However, export earnings declined markedly in 1981/82 as uranium exports declined in volume (as a result of lowered production) and price (lowered worldwide demand). As in many African countries, debt outstanding and disbursed (Debt), has been increasing since 1980 in Niger. The combination of increased debt with decreased export earnings has caused a significant increase in the debt service ratio (Debt Ratio) from a low of 6% in 1980 to 30% in 1982 − one of the highest ratios in the world. At this time the IMF and World Bank recommended a series of adjustment strategies; the use of IMF credit (IMF) began to rise, and the latest figures (for 1985) show a continued increase. The economic difficulties which began in 1980 are reflected in a rise in consumer price index from 90 to a high of 140 in 1982 (CPI). Subsequent trends in CPI have been more sporadic with a seasonal component becoming more evident by 1984; but the overall trend seems to be one of a continued but more gradual increase in prices peaking in 1984 followed by stabilization and a possible lowering of prices by the end of 1987. Food prices are not available until 1983, but like CPI, a sharp increase occurred around July/August 1984 (probably due to the drought) followed by an apparent overall decline, but maintaining a strong seasonality (FPI).

Nutrition

Prevalences of below 80% weight−for−age were recorded monthly from 1981 to 1987 in the capital Niamey (Underweight Children). Prevalence estimates tend to fluctuate within any given year, but when the seasonal component is removed, the trend appears upward since 1981 with the sharpest increase from 1982 to 1983 (Prev. Deseasonalized). It is surprising that the impact of the drought on production and thus food availability in 1984 did not seem to have a more serious affect on increasing prevalences of malnutrition. However, prevalences did begin to rise again in 1984 and 1985, albeit more slowly than in 1982, after a short period of stabilization. It is possible that the earlier rise in malnutrition was a result of the deteriorating economic situation, lower GNP, increased prices, etc., while the latter more gradual increase was due to the drought. The fluctuations seen in prevalences within any given year show a seasonal component (this is the factor by which prevalence increases or decreases as a result of seasonality which is superimposed on any long−run trend; see Seasonality) which agrees with the harvest calendar. There is a single harvest in Niger, September to November, which occurs just after the major peak in prevalences in about July/August. Following the harvest period, prevalence estimates decline from about December through March of the next year. These seasonal trends are evident in other indicators including economic and health. The most striking seasonal associations occur with prevalences of malnutrition (Seasonality) and the food price index (FPI). The peak in FPI occurs at exactly the same time as the peak prevalence, just before the harvest period. The apparent overall decline in food prices in 1986−87 may have contributed to the concomitant improvement in nutritional status in this year.

NIGER



POPULATION: 6.5 M

POPULATION DENSITY: 5 per sq. km.

POP. GROWTH RATE: 3% per annum

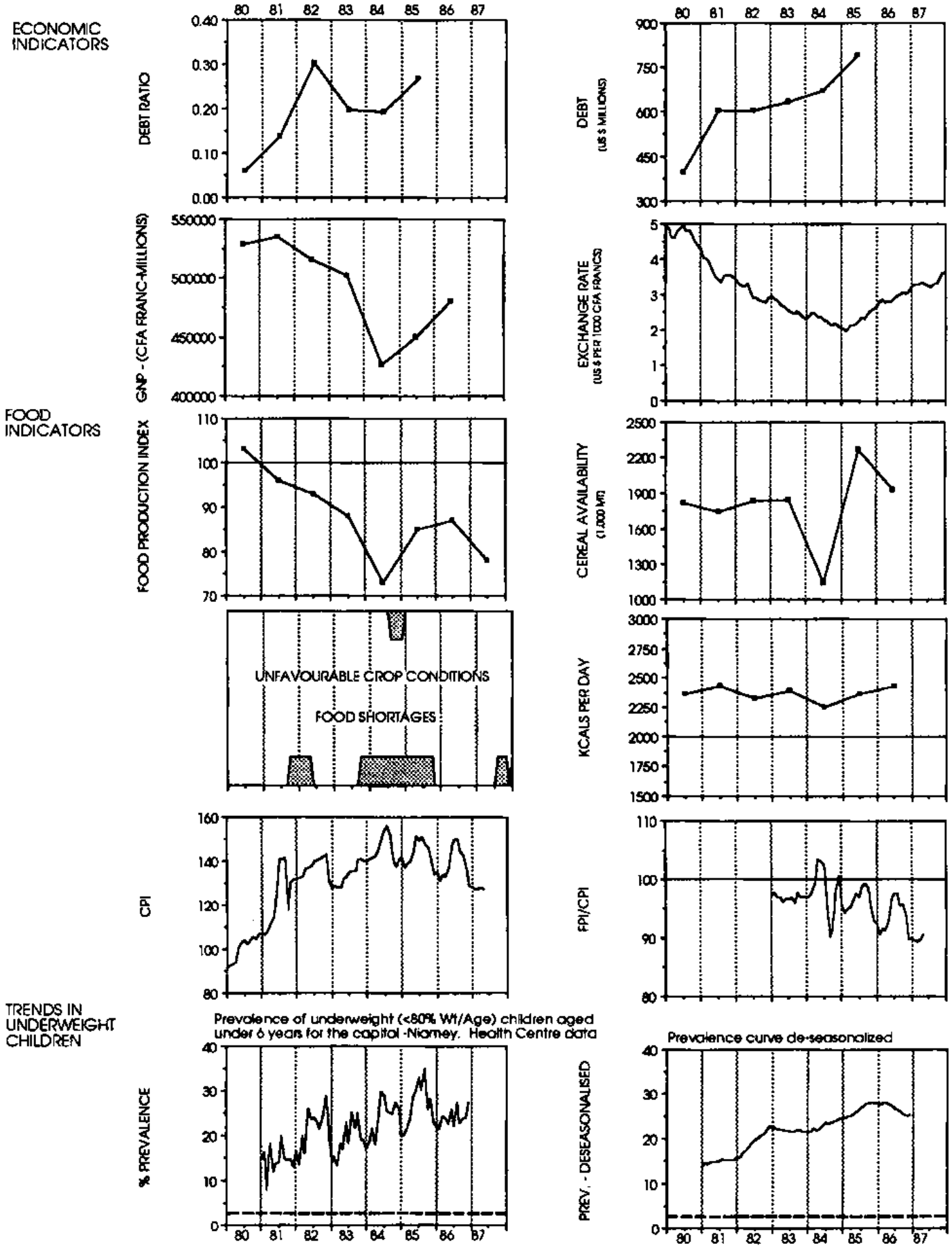
PERCENTAGE URBAN POP.: 18%

IMR: 136

U5MR: 232

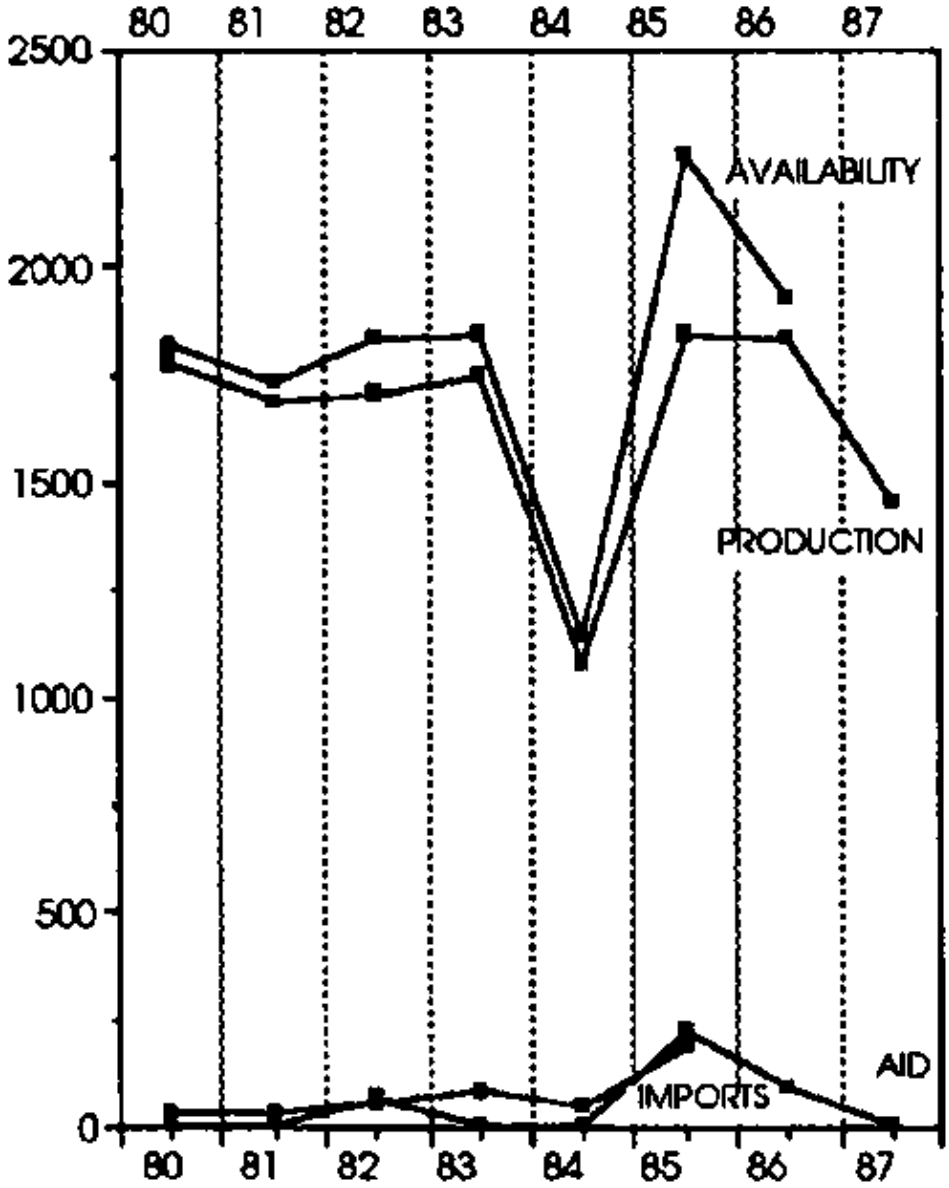
GNP (PER CAPITA): US$260

ESTIMATED PREVALENCE LEVEL UNDERWEIGHT CHILDREN: 15% – 25%

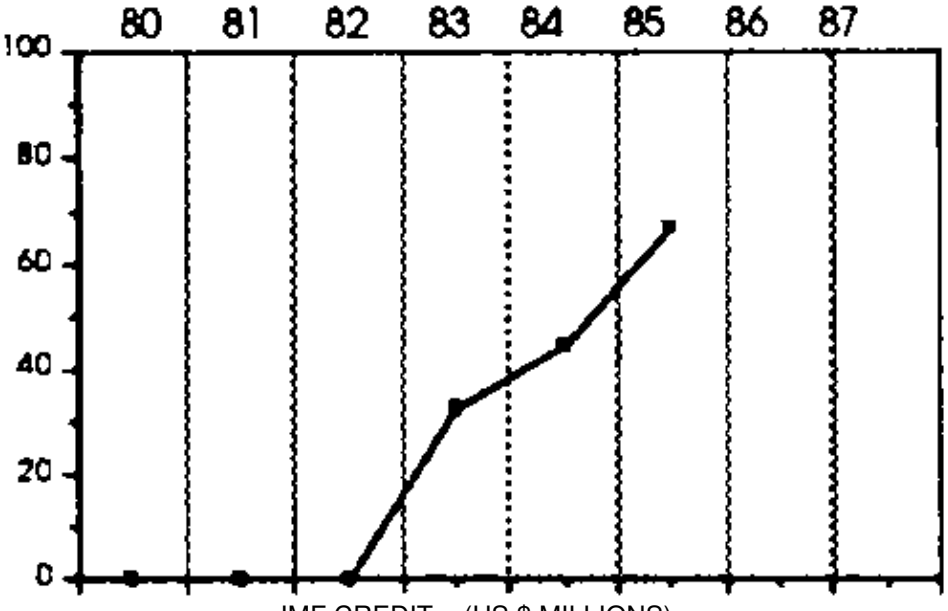


GRAPHICS

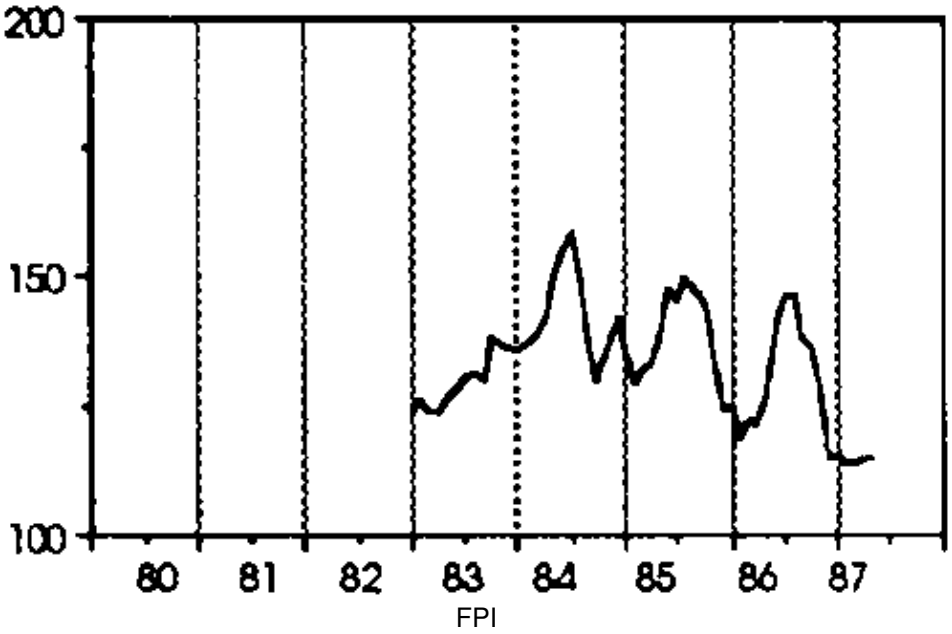
ADDITIONAL FOOD & ECONOMIC INDICATORS



CEREALS (1,000 MT)

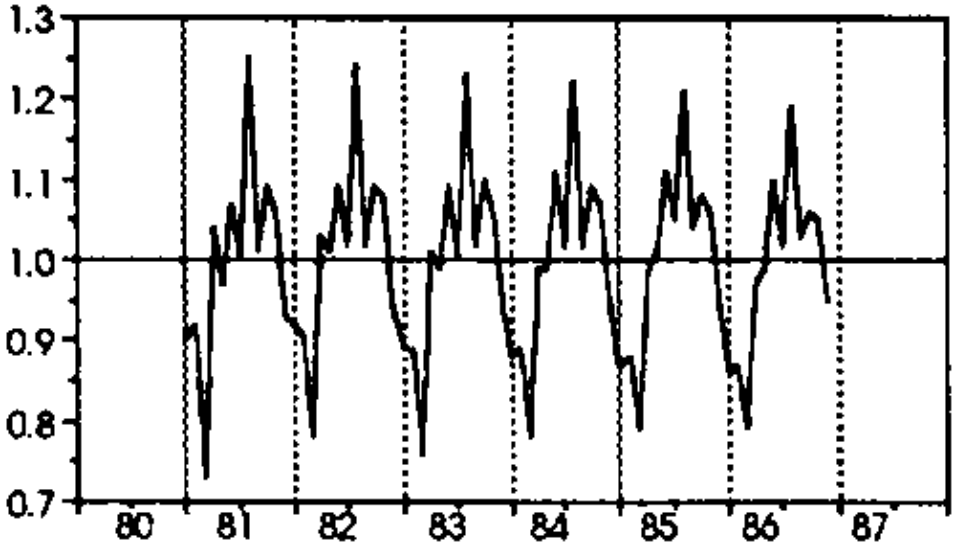


IMF CREDIT – (US $ MILLIONS)

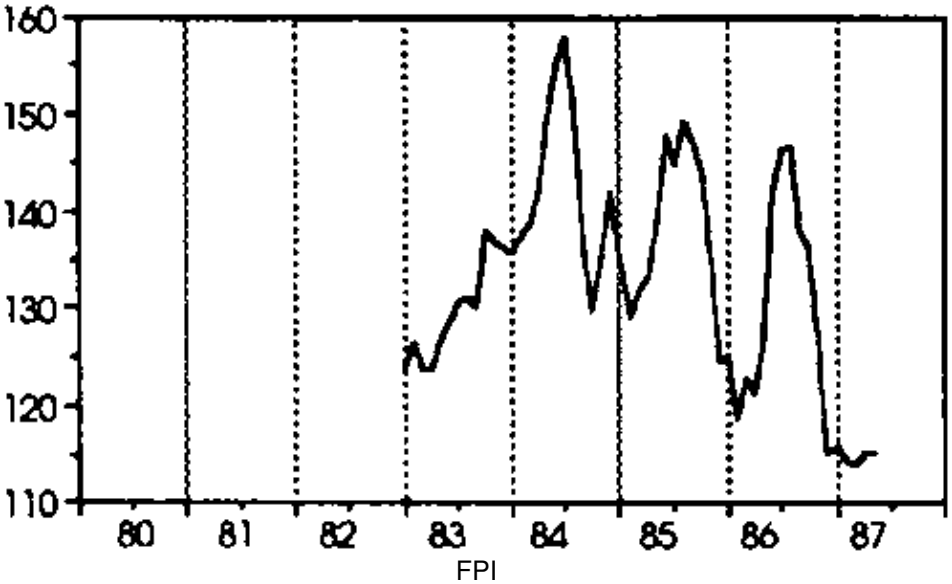


FPI

SEASONALITY



SEASONALITY FACTOR – Seasonal component of underweight prevalence



FPI

Rwanda

Rwanda is one of the smallest and most densely populated states in Africa. The population is in excess of 6.5 million (mid−1987), and growing at an estimated 3.3% per annum. Population density is approximately 250 persons/sq. km. The rate of increase in cultivable land is only about 1.5% per annum. This increase – not adequate to keep pace with population needs – is itself being offset by deforestation and soil erosion. These factors contribute to existing environmental constraints on agricultural production. To meet the continuing strain on food resources, the third 5−Year Plan (1982−'86) targeted self−sufficiency in food as a major priority. Food production was relatively stable during this 5−year period (see Food Production), if 1984 – a drought year – is excluded. The main 1984 harvest was reduced by 50% as a result of drought. There was a partial recovery in 1985, only to be reversed in 1986. 1987 fell far short of previous years at only 74% of the 1980 production figure, and the intended annual growth rate of 3.3% since 1982 has not been achieved.

Agriculture

Although the main provider of employment (at 90% of the labour force) and the principal export earner, agriculture contributes only 42% to GDP. A very high percentage of total production is in the form of subsistence crops. Coffee is the main cash crop and accounts for on average 70−80% of the value of exports. The food production index (Food Production Index), in line with the trend in cereal production (Cereals: Production) show similar profiles: rising until 1982, declining in 1983/'84, recovering in 1985, followed by further reductions in 1986 and '87. Cereal imports (Cereals: Imports) and cereals provided as food aid (Cereals: Aid) rose substantially in 1984/'85 and declined thereafter. As a consequence, cereal availability (Cereal Availability) peaked in 1985 with an additional 50,000 MT, before returning to its previous level of around 330,000 MT. Food availability as indicated by the Food Balance Sheet, and expressed as kcals/caput/day decreased markedly from 2130 kcals in 1982 to 1920 kcals in 1983 and continued downwards to 1830 kcals in 1986 (Kcals per day). This reflects the trend in the indices of total food production and cereal production already described, and is a notably low level.

The Economy

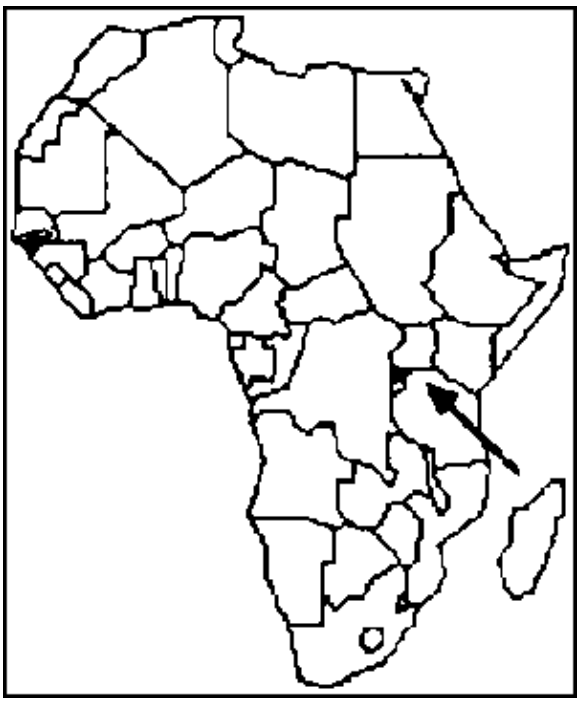
Rwanda, being land−locked, depends on rail links through neighbouring countries to get its goods to port. The civil strife in Uganda in 1984 and 1985 created difficulties which significantly increased the cost of imported goods, including food, which amounts to some 15% of the value of total imports. This exacerbated the effects of the drought during that period. The economy has suffered further as a result of recent fluctuating coffee prices on the world market as this commodity accounts for as much as 80% of the value of the country's exports. GNP rose between 1980 and 1981, remained steady until 1983 and declined in 1984. Some recovery is evident in 1984 and '85 (GNP). Debt outstanding and disbursed and total debt as a percentage of goods and services exported (Debt & Debt Ratio, respectively) have been rising continuously, the former by 150% between 1980 and '86. The exchange rate (US$ per Rwd. franc) was constant until the third quarter of 1983, at which point it declined until the beginning of the second quarter of '85. By January 1987 the rate had increased again by 26% (Exchange Rate). Austerity measures were announced in 1984 and maintained since, which resulted in raised prices for agricultural products, and the control of imports. The consumer price index had been increasing steadily until late '84, at which point it stabilized for a period. By mid−'86 it had begun to rise again (CPI). Over the period 1980−1986 consumer prices rose by 40% – modest in comparison with many other countries in the region.

Nutrition

The nutritional data were collected from a nation−wide system of nutrition centres managed by the government and supported by Catholic Relief Services. Data are available from January 1982 to December 1986. Subsequently, the programme selected only underweight children, so prevalence data cannot be interpreted. The five−year Rwandan nutritional profile is most notable for the comparative consistency of prevalence levels, during a time of ecological and economic distress for most of sub−Saharan Africa. The prevalence of underweight children varied by less than 3% over the entire period; it ranged from 29% to 32% below 80% weight−for−age of the reference population (Underweight Children, % Prevalence). The nutritional data do not show any drought−related deterioration (Food Shortages). However, the overall trend is very gradually upwards, which is cause for some concern (Prev. Deseasonalized). The two harvests per year may provide some stabilization of food availability. The first in January−February, and the second, in June. While there is a minor seasonal pattern in the prevalence data, it is however not particularly pronounced, and this is consistent with the two harvests per year.

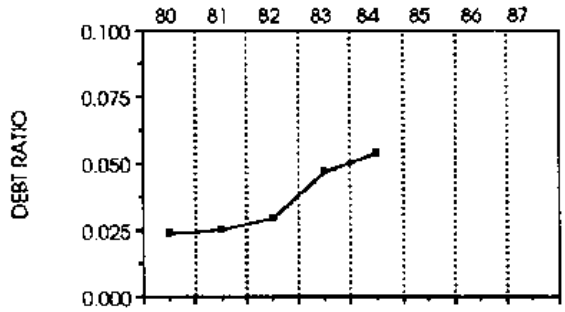
The reported annual incidence of measles remained high during 1980 and '81, decreasing strongly in 1982 and more gradually until 1985. 1896 saw an upturn once more, which may well reflect the well established periodicity of measles epidemics.

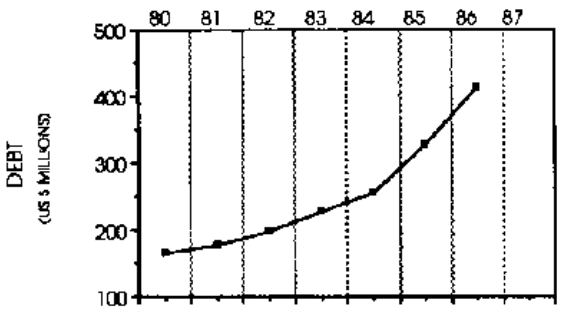
RWANDA

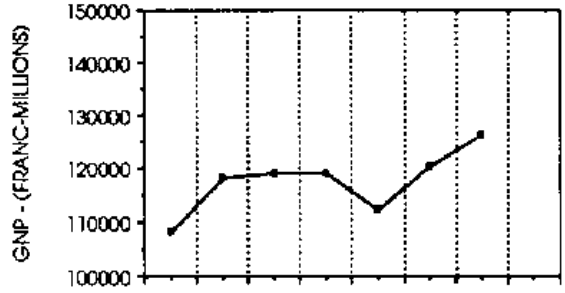


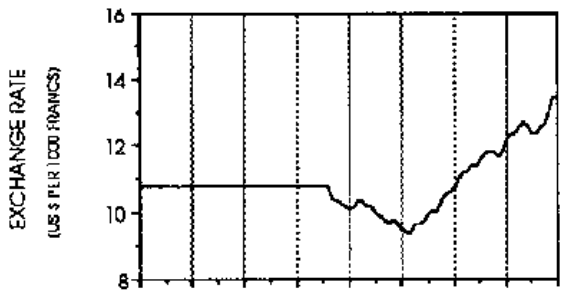
POPULATION: 6.5 M	IMR: 123
POPULATION DENSITY: 250 per sq. km.	U5MR: 209
POP. GROWTH RATE: 3.3% per annum	GNP (PER CAPITA): US$290
PERCENTAGE URBAN POP.: 7%	ESTIMATED PREVALENCE LEVEL UNDERWEIGHT CHILDREN: 20% – 30%

ECONOMIC INDICATORS

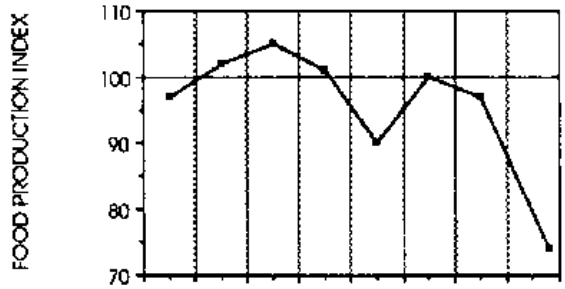


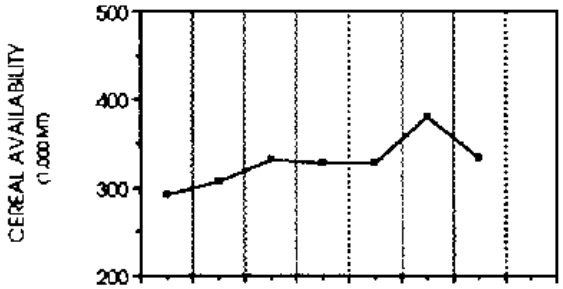


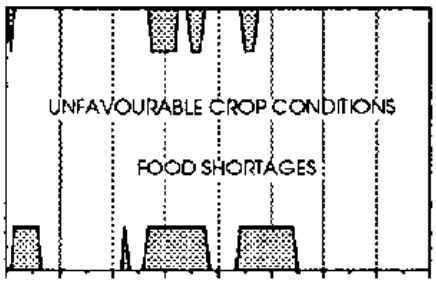


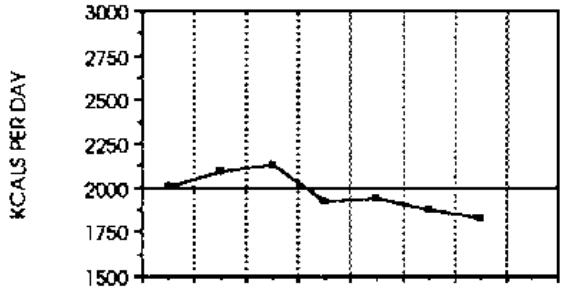


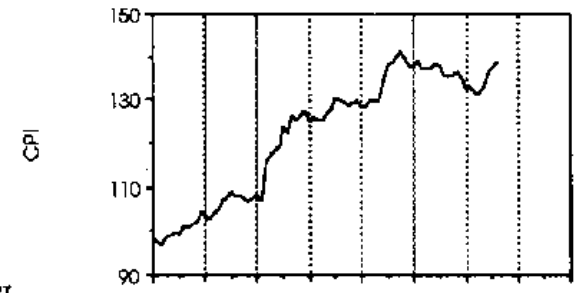
FOOD INDICATORS









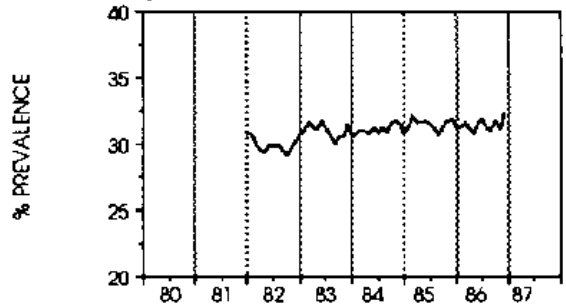


FPI/CPI

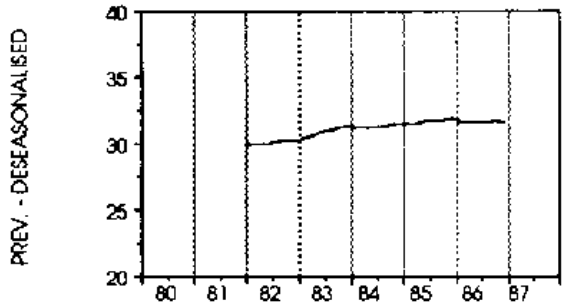
NOT AVAILABLE

TRENDS IN UNDERWEIGHT CHILDREN

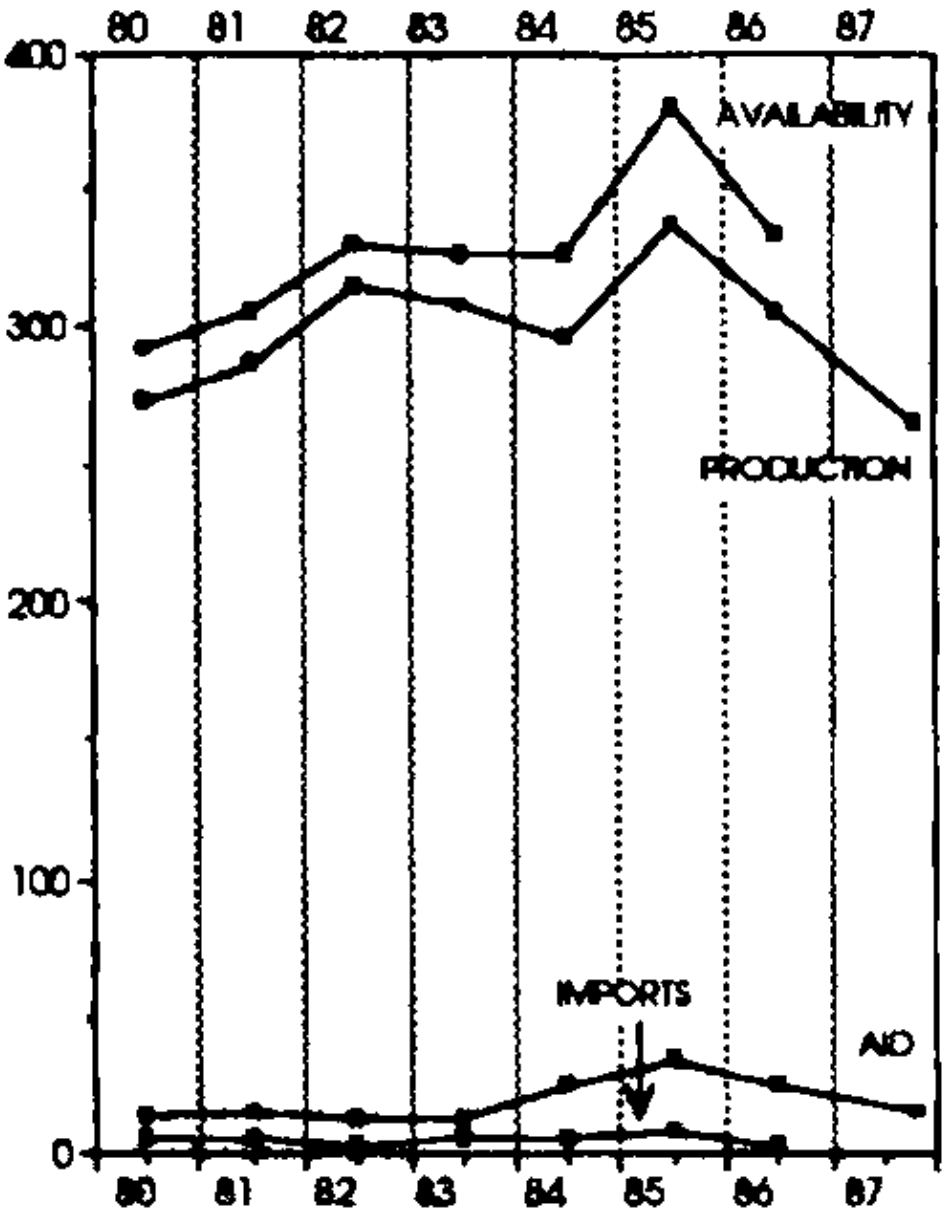
Prevalence of underweight (<80% Wt/Age) children aged under 5 years. Health Center data.



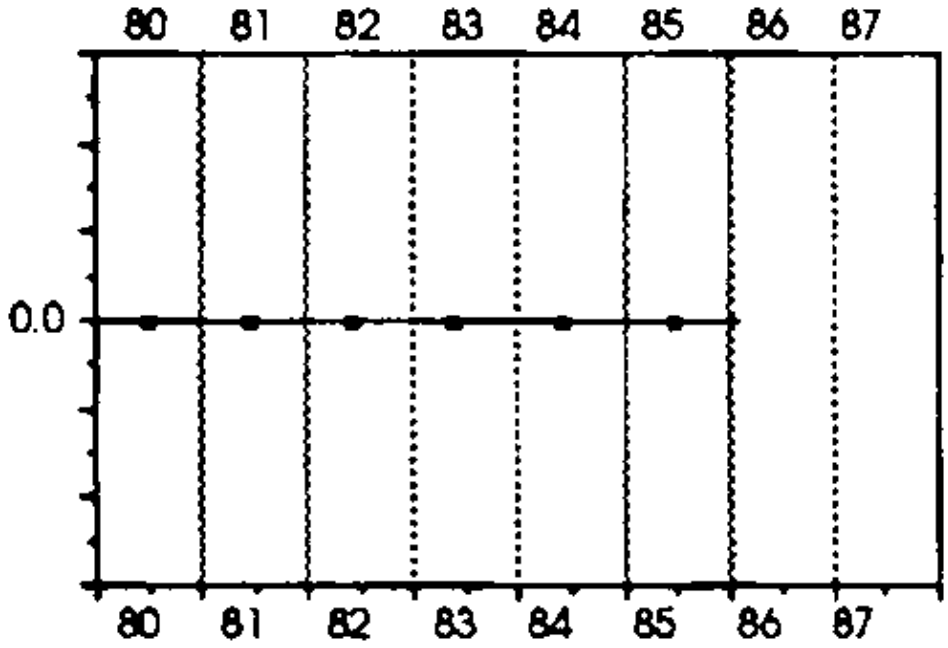
Prevalence curve de-seasonalized



GRAPHICS



CEREALS (1,000 MT)



IMF CREDIT – (US $ MILLIONS)

MEASLES

NUMBER OF CASES – Reported annual incidence of Measles

Sudan

With an area in excess of 2.5 million sq. km., the Sudan is the largest country in Africa. Comparatively featureless throughout, there are nevertheless a number of distinct ecological zones. The north of the country is desert with negligible rainfall. Rainfall gradually increases moving southwards to around 1,000 mm per annum, although this figure varies from year to year, with critical economic and health consequences. The rainy season lasts from April to October in the South, but contracts to the months of July and August in the north. The Nile River (with major tributaries the Blue and While Niles) is at the heart of most economic and agricultural activity in the country. The Blue Nile supports over 40% of the irrigated land which is used primarily for the production of cotton – the only cash crop of significance in the Sudan. The river floods towards the end of July and waters remain high until the end of October.

The census of 1983 enumerated the population at 20.5 million, (estimated in 1987 at 23.1 million), with just over 79% rural, 11 % nomadic and the balance urban and semi–urban. The bulk of the population is concentrated within the Central Region giving a local density of approximately 28 persons per sq. km. compared with 9 per sq. km., nationally. The rate of increase in the population is estimated at 2.8% per annum.

Since its independence in 1956 the country has experienced a number of turbulent years. There have been 6 separate regimes during this period, the last of which – a civilian coalition – changed as recently as late 1987. The main difficulties faced by successive governments have been both political and economic. The former arises from the continuing civil war engendered by the determination of the South to have some form of independence from Khartoum. The cost of this long struggle has been enormous in both human and economic terms. The principal economic difficulties are related to Sudan's dependence on cotton as its major foreign currency earner. Fluctuating prices on the international markets for cotton, compounded by quality control problems and further aggravated by periodic droughts, have proved very damaging to the economy.

Agriculture

The agricultural sector contributes as much as 40% of GDP during non–drought years and is the major source of foreign earnings. However, at the height of the recent drought in 1984 and 1985, its contribution dropped to 28%. Eighty percent of the workforce is involved in this sector, the majority being subsistence farmers. Around one third of the total land area is suitable for some form of agricultural production, yet only 15% of available arable land may be cropped because of the need for water, whether as rain or through irrigation schemes. While the bulk of the cash crop is produced on the irrigated land comprising the Gezira Scheme – one of the largest farms in the world – the rainfed lands account for most of the staple grain production and a significant percentage of meat, milk and vegetables. This is usually adequate to meet demand during normal years. From a peak in 1981, overall food production fell by over 20% by 1984 (see Food Production Index) and by 65% for cereals for the same period (Cereals: Production); much of this decline happening in 1984 due to drought (Food Shortages & Unfavourable Crop Conditions). This was followed by a partial recovery in 1985 and '86, but 1987 proved another disastrous year with the grain harvest down by over 50% on the previous year. This follows a reduction in the area sown, inadequate and unreliable rainfall – particularly in the western regions – and loss of grain to pests. Local surpluses of grain were available in 1987, but resources for distribution to areas with shortfalls did not exist. The shortfall in 1987 was largely made up for by reasonable harvests in the preceding two years and helped by cereal imports and cereal aid (Cereals: Imports & Aid). In consequence, available cereals for 1987 remained reasonably high (Cereal Availability) as did available calories (Kcals per day).

FAO reported in Nov. '88 that the food supply situation continues to be problematic. The South is particularly badly affected due to food shortages arising largely due to the disruption caused by the continuing civil war. Reports of deaths and starvation have come from many towns in the South. International assistance was required to purchase and airlift local surpluses for distribution to famine–affected areas. In the North, 1988's end–of–year crop is believed to be appreciably better than 1987's, inspite of severe flood damage earlier in the season and conditional on further damage by desert locusts being contained. FAO reported that localized shortages persist in the Red Sea province and in Darfur and Kordofan. Domestic production is still far short of requirements and food imports, both commercial and as structural food aid, will continue to be needed for the forseeable future.

The Economy

As over 90% of its export earnings derive from primary agricultural products, the drought's impact has been substantial. As measured in local currency, GNP, after rising between 1981 and 1983, fell very sharply in 1984 and again in 1985 (GNP). Sudan's current trade deficit stands in excess of S£ 1,000 million and its external debt, which has continued to rise rapidly, at around $13 billion. Debt expressed as a proportion of services and goods exported (Debt Ratio) began to increase again in 1985 after a significant decline from a high in 1982.

Negotiations with IMF in May 1979 and subsequent years brought about in a series of currency devaluations (Exchange Rate), reduction in food and other subsidies, substantial price rises (CPI) and cut–backs in public expenditure and imports. Sudan maintains one of the largest outstanding debts of any nation with respect to the IMF. Strong public feelings generated in response to the impact (CPI & FPI) of adjustment policies contributed to the change in government in 1985. Nevertheless, increased austerity measures were undertaken by the government in January '86, following the beginning of a new round of talks with international financial institutions. In spite of certain difficulties – notably the government's continuation of food subsidies – agreement was reached for additional credit toward the end of 1987. This resulted in another devaluation of the currency (Exchange Rate) and price increases on certain nonfood items.

Nutrition

During the drought period, numerous nutritional status studies were conducted, primarily by relief agencies. These were typically small–scale, based in different geographic areas, often of different age groups and using different measures. However, in mid–'86 the Ministry of Health, with funding from US AID, undertook a series of 4 studies of under fives in 6 regions of the country (Sudan Emergency and Recovery Information and Surveillance System – SERISS, 1986[1]).

[1] Sudan Emergency and Recovery Information and Surveillance System, Report No. 1, November 1986. Ministry of Health, Khartoum.

The results (Wasted Children & Regional Prevalences) show seasonal changes in the prevalence of malnutrition in terms of the percentage of the sample less than – 2 S.D. of reference median for each of 12 provinces. Differences, both seasonal and inter–provincial, are marked. There are pronounced differences between the 1986 and 1987 maximum figures; differences between the minimum figures are even more significant.

The peak wasting prevalences seen in 1986 – reaching nearly 30% in the Red Sea province – are very substantial and indicated a very serious nutritional situation.

From the first panel it will be seen that for these provinces, prevalences peak in Oct/Nov., decline in Jan/March and then show an upswing in May/July '87. For the provinces shown in the second panel there is no evidence of a peak in Oct/Nov. This is also the case for the prevalences shown in the third panel. The minimums occur, as before, in Jan/March – following the main coarse grains harvest in Nov. to Dec. – and the upturn is also evident in May/July '87. (The wheat harvest occurs in March.)

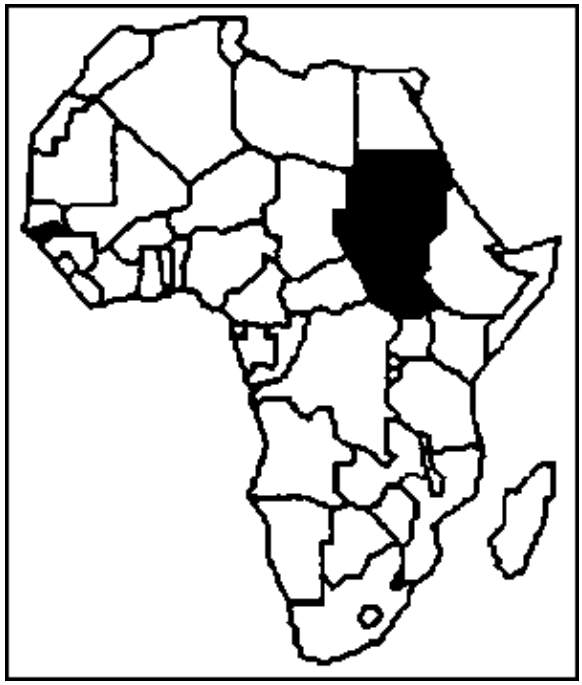
The Gezira province has the lowest prevalence rates generally, and approached the expected rate of around 2.5% – as would be expected based on a Gaussian curve – in January 1987. After Khartoum, the Gezira is the second most developed region in the country.

There is some evidence of a decrease in the mean prevalence, allowing for seasonal shifts, between 1986 and 1987; 10 of the 12 provinces show better May '87 figures than for the preceding May. However, this conclusion remains tentative, based, as it is, on only 4 time points. Maximums and minimums for the 4 time points are tabulated below.

Table of seasonal differences in prevalences of undernourished (< – 2 S.D's. reference weight–for–height)

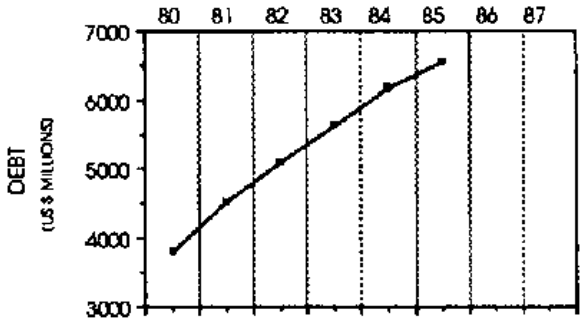
	(May/Jun '86)	(Oct/Nov '86)	(Jan/Mar '87)	(May/Jul '87)
Max.	23.5%	26.9%	14.0%	16.9%
Min.	13.4%	8.7%	2.3%	9.0%
Mean	18.2%	15.8%	8.4%	12.5%

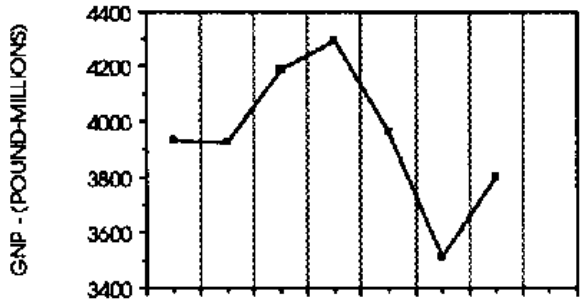
SUDAN

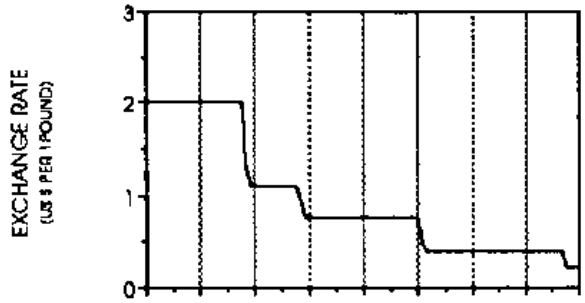


POPULATION: 23.1 M	IMR: 109
POPULATION DENSITY: 9 per sq. km.	U5MR: 184
POP. GROWTH RATE: 2.8% per annum	GNP (PER CAPITA): US$320
PERCENTAGE URBAN POP.: 21%	ESTIMATED PREVALENCE LEVEL UNDERWEIGHT CHILDREN: 20% – 30%

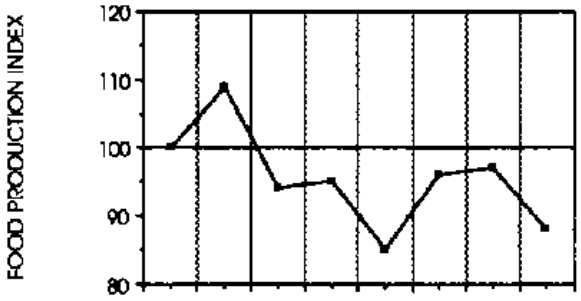
ECONOMIC INDICATORS

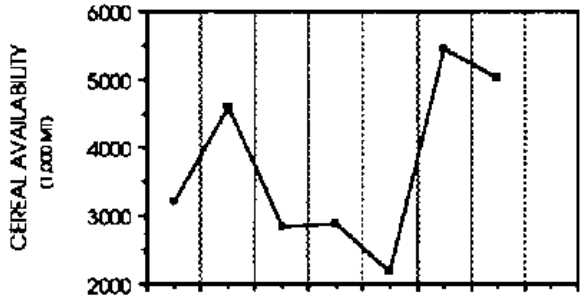


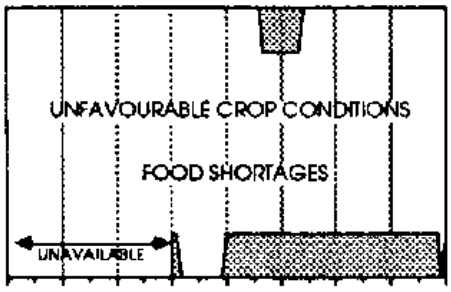


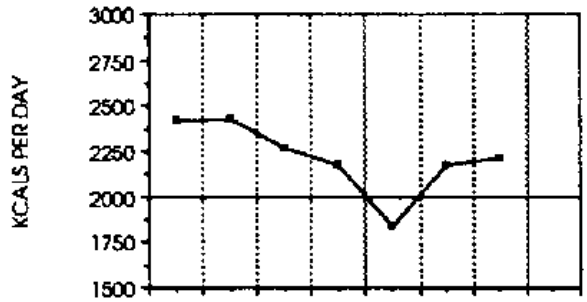


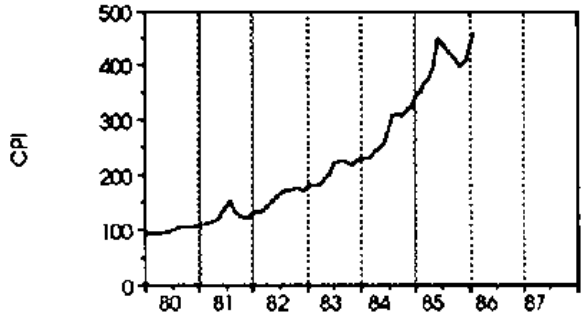
FOOD INDICATORS

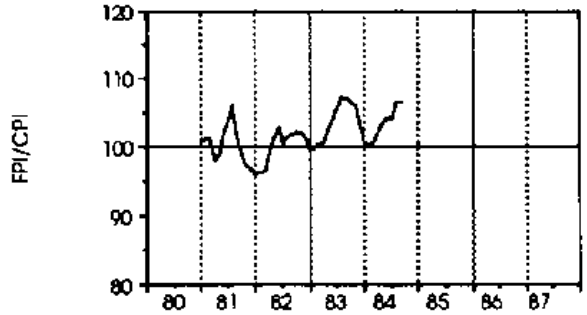






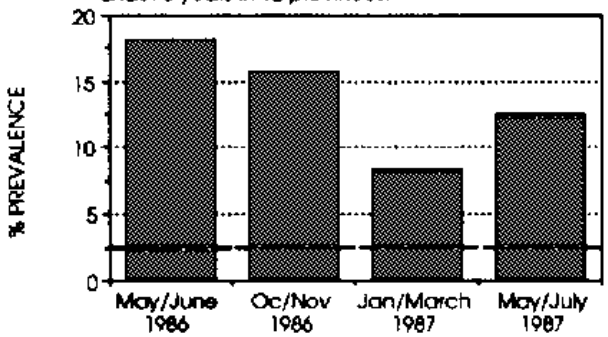




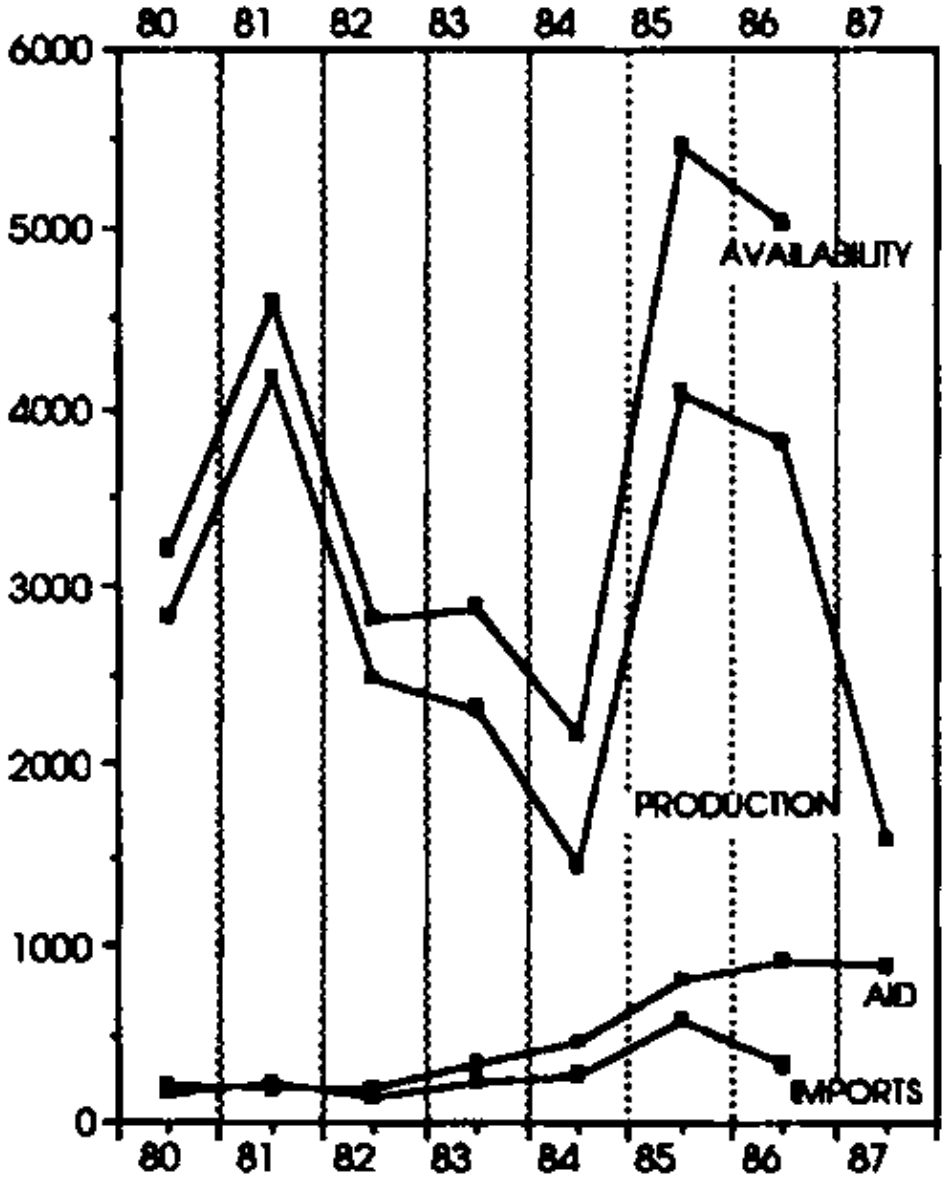


WASTED CHILDREN

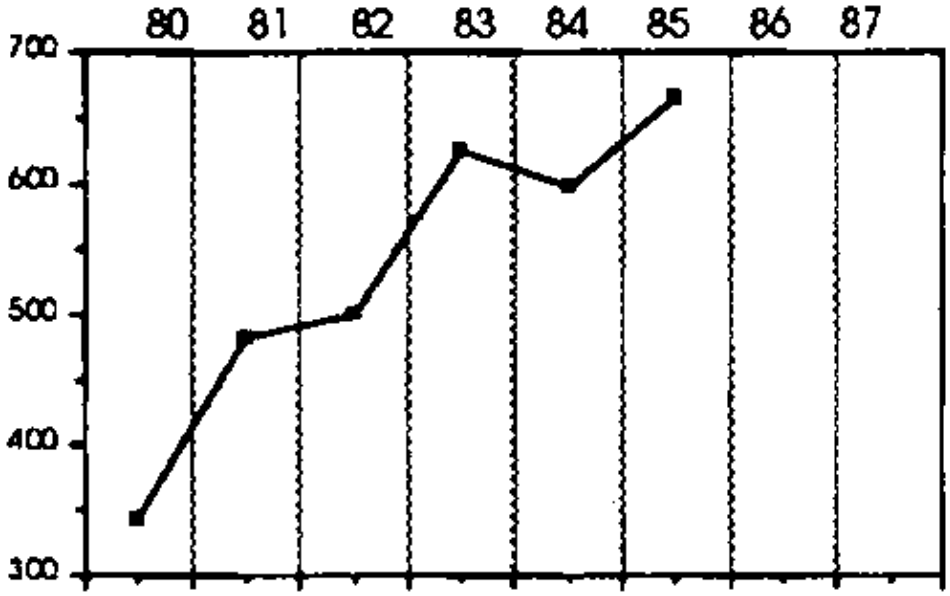
Prevalence of wasting (<-2 S.D. Wt/Ht) in children aged under 5 years in 12 provinces.



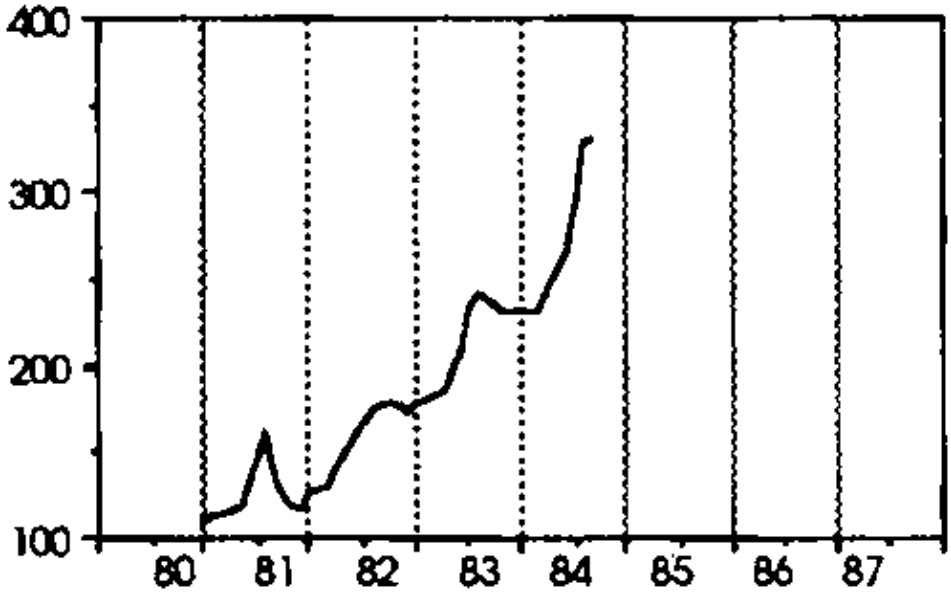
ADDITIONAL FOOD & ECONOMIC INDICATORS



CEREALS (1,000 MT)

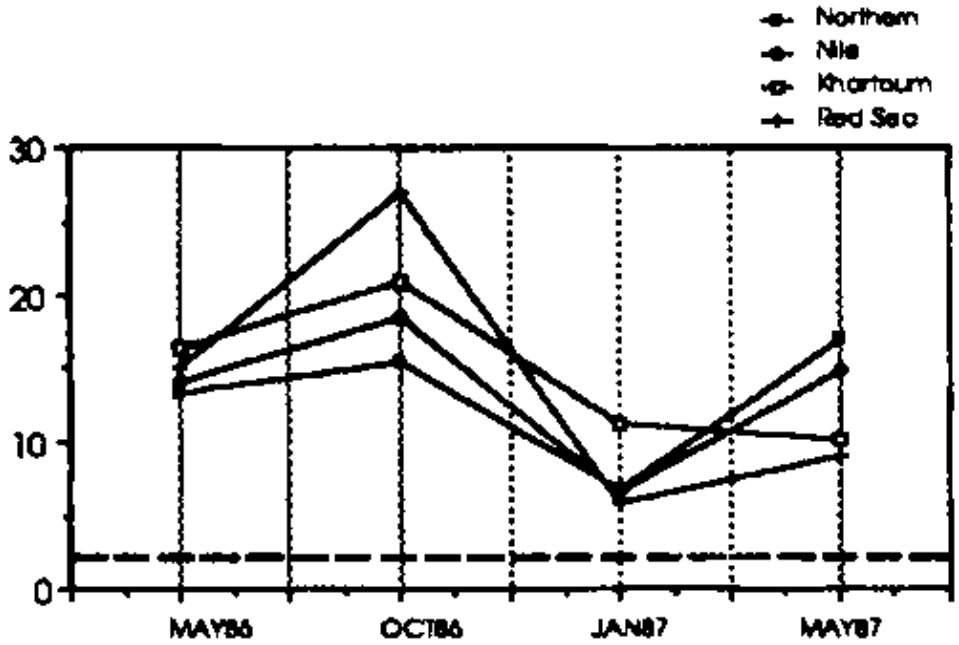


IMF CREDIT – (US $ MILLIONS)

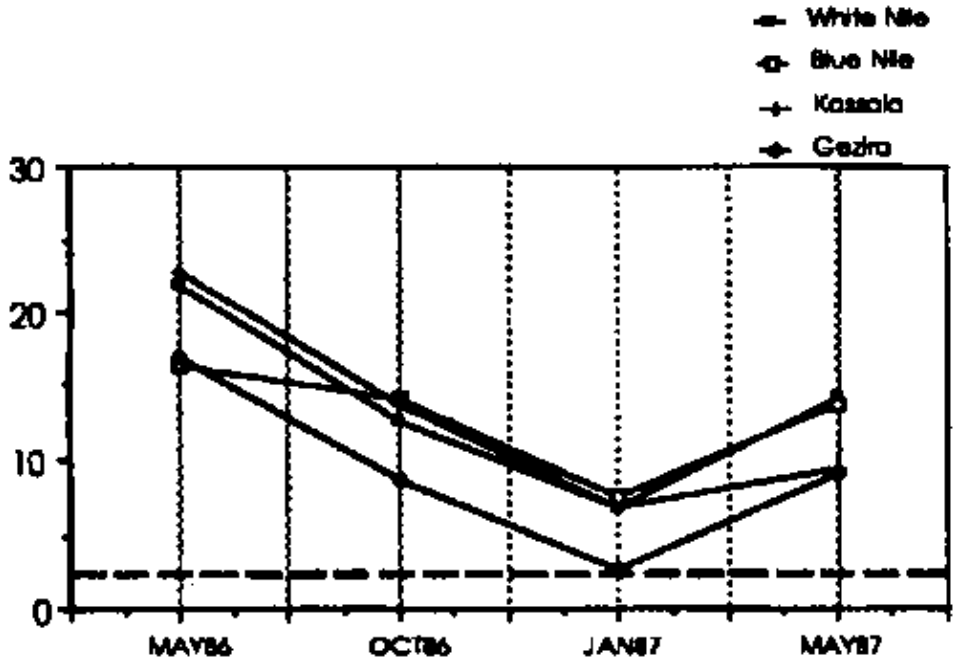


FPI

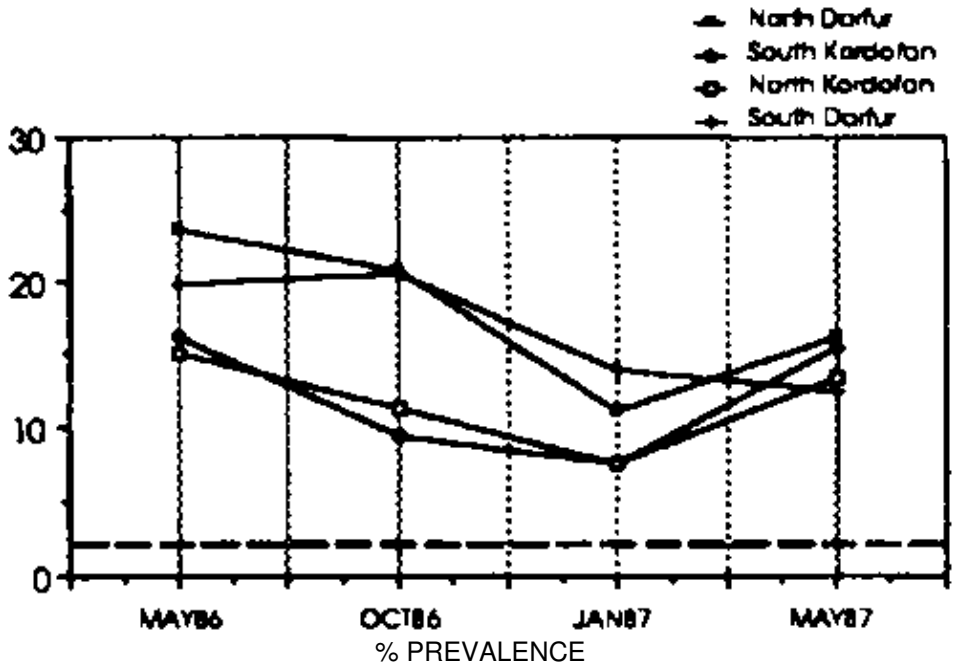
REGIONAL PREVALENCE OF WASTING

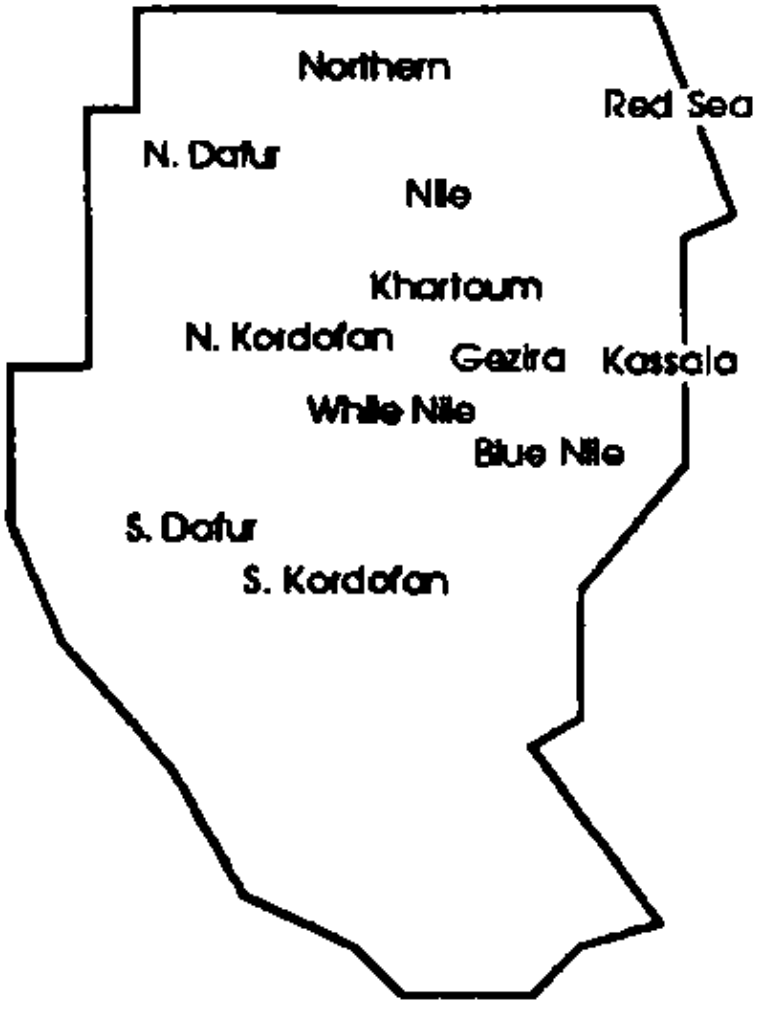


% PREVALENCE – Prevalence of wasting (<–2 S.D. Wt/Ht) in children aged under 5 years for selected provinces



% PREVALENCE





Tanzania

Three years after their independence in 1961 from British Trusteeship, Tanganyika and the island of Zanzibar formed the United Republic of Tanzania. Population was estimated at mid–1987 to be 24.5 m. The land area is just under 1 million sq. km., and the population density is 26 per sq. km. Growth in population is 3.5% per annum. The temperature and rainfall vary widely over the country as a consequence of its diverse relief, from

tropical to temperate conditions, with rainfall differing from a high of 1250 mm to a low of under 500 mm. Soil fertility is not particularly high, except in Zanzibar and the environs of Kilimanjaro and Mwanze, which have the highest population density. Considerable efforts have been made to develop a measure of self–sufficiency based on a principle of village socialism. The droughts in the 1970's and '80's, border disputes with neighbouring countries during the early to mid–'70's, and fluctuating market prices for Tanzania's cash crops, have contributed to only moderate economic performance since independence.

Agriculture

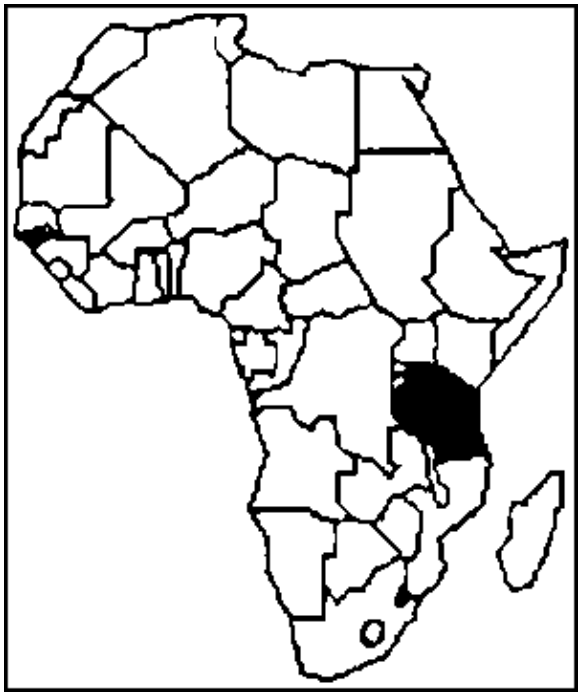
Agriculture contributes 80% of export earnings and employs around 90% of the labour force. Its share of the GDP has dropped from 47% between 1971 and 1973 to just under 40% a decade later. Currently, it stands at around 50% of GDP. As a result of the high costs of inputs and poor returns, the production of cash crops – coffee, cloves, cotton and tea –fell during the late seventies. Farmers moved out of cash crops and into subsistence farming. This decline was reversed in 1983 as a result of price increases of the order of 40% for the main cash crops. There have been further increases during the period since, which is in line with the agreement signed between the government and the IMF in 1986. Poor rains in 1982, and drought in 1983 and 1984, have contributed to the fall–off in total food produced (see Food Production Index). Unfavourable crop conditions were recorded in 1980, 1981, 1983 and 1984, and food shortages each year between 1980 and 1985 (Unfavourable Crop Conditions & Food Shortages). Cereal production fell by 9% between 1980 and 1983; the 1984/85 crop year saw an improved harvest, which continued through 1986 (Cereals: Production). A record cereal harvest was recorded for 1987. Commercial cereal imports decreased until 1984, although there is a corresponding increase in cereal aid (Cereals: Imports & Aid). Overall, the trends in cereal availability (Cereal Availability) – which contributes an estimated 40% of the Tanzanian diet – and per capita food supply (as Kcals per day) became positive in 1984 in line with cereal production.

The Economy

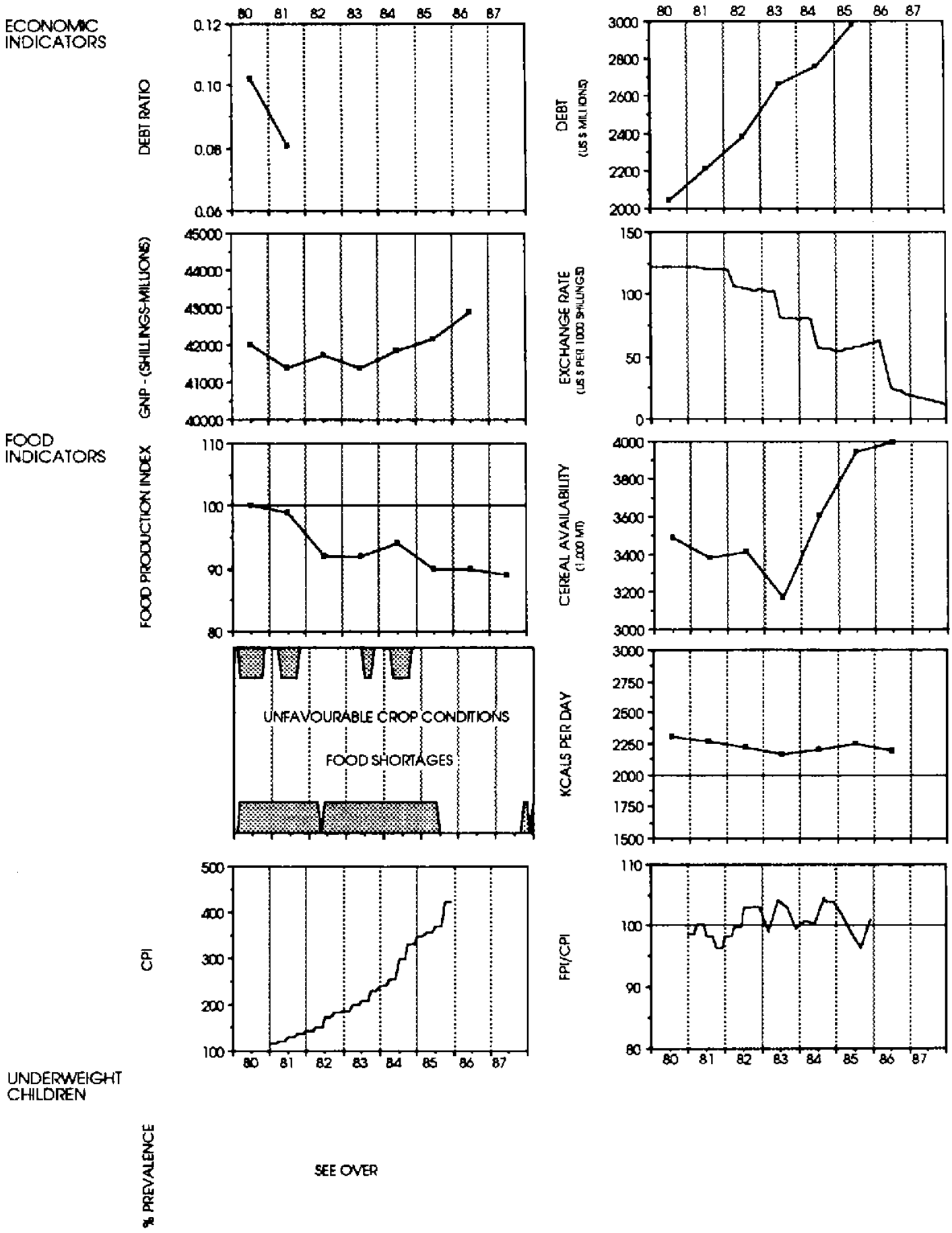
Over the 6–year period 1980 through 1985, debt outstanding and disbursed had increased (from a base of $2.04 bn) by 46% (Debt). In 1985 the total external debt had reached a figure of $3.5 bn. Debt (as debt outstanding and disbursed) as a percentage of GNP had climbed from 39% in 1980 to 52% in 1985. Poor production and the comparatively low value of its trade goods (particularly the cash crops) resulted in a negative balance of trade of some $747m by 1985. The government started negotiations with the IMF in 1979. An agreement was signed in 1980 and the first tranche was advanced before the agreement fell through in 1981 (IMF). Further negotiations continued on and off until another agreement was reached in late 1986 covering standby credit and a structural adjustment facility as part of the 3–year Economic Recovery Programme. Agreement was also reached with the World Bank and linked to the funding by the IMF. As a direct consequence, debt rescheduling was provided by the major donors in 1986 and additional financial assistance approved. Part of the agreement with the IMF involved a substantial currency devaluation in 1986 (Exchange Rate). Further smaller and frequent devaluations have taken place since. Price controls were also to be removed in stages and subsidies removed on maize. To counteract the inflationary effects (CPI & FPI) – running at 33% in 1985 – of these measures, wages of civil servants were raised by around 20% in 1987. The GNP fell slightly in 1983, but recovered thereafter (GNP). The agreement with the IMF seeks improve export earnings and to increase the GDP by 4.5% per annum. In the last year or two, the signs are that the government has apparently managed to halt a prolonged economic decline. Following devaluation of the shilling to more competitive levels, and the controls on government spending and borrowing, improved performance of the economy is anticipated. To a degree, this depends on increasing the value of foreign trade, which in turn requires an increasing return from the country's main cash crops – coffee and cloves. Unfortunately, world prices for both these products have been low in 1987 and remain unreliable.

Nutrition

As is the case with many African countries, a number of nutritional surveys have been conducted during the course of the last two decades. However, by–and–large successive surveys have not been designed with comparability over time in mind. Seasonality, target population, ecological zone, choice of age groups and indicators have varied from study–to–study. While concentrating on the Iringa region, data collected by the Joint Nutrition Support Programme (a WHO/UNICEF collaborative project supported by the Italian government) – as part of a multisectoral nutrition intervention programme – have enabled some comparisons of nutritional status over time to be made. It must be stressed that the evident and significant improvement in the prevalence of underweight in under fives (Quarterly Prevalence) in Iringa is most likely due to intervention activities and is not thought to be applicable to the rest of the country.



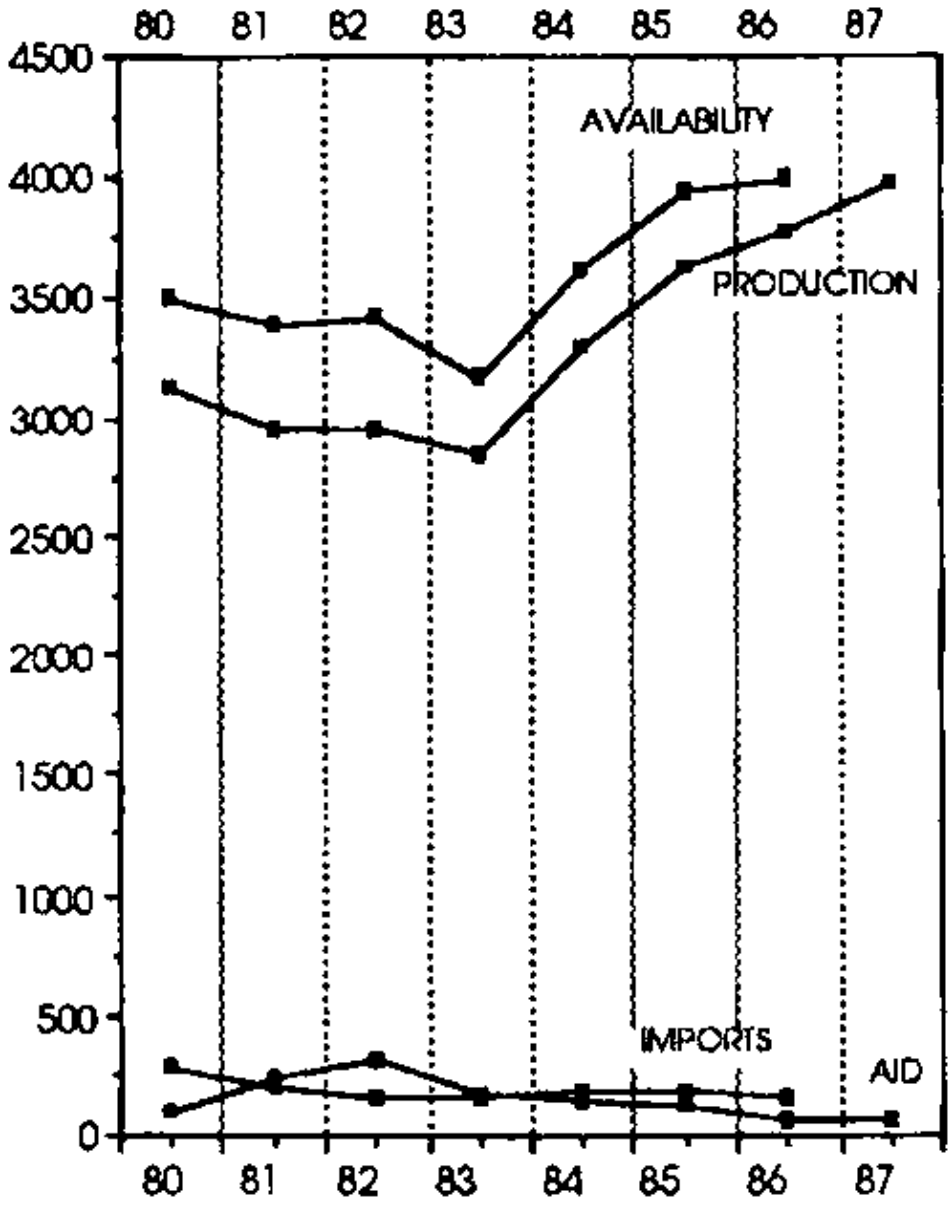
POPULATION: 24.5 M	IMR: 107
POPULATION DENSITY: 26 per sq. km.	U5MR: 179
POP. GROWTH RATE: 3.5% per annum	GNP (PER CAPITA): US$250
PERCENTAGE URBAN POP.: 28%	ESTIMATED PREVALENCE LEVEL UNDERWEIGHT CHILDREN: 15% – 25%



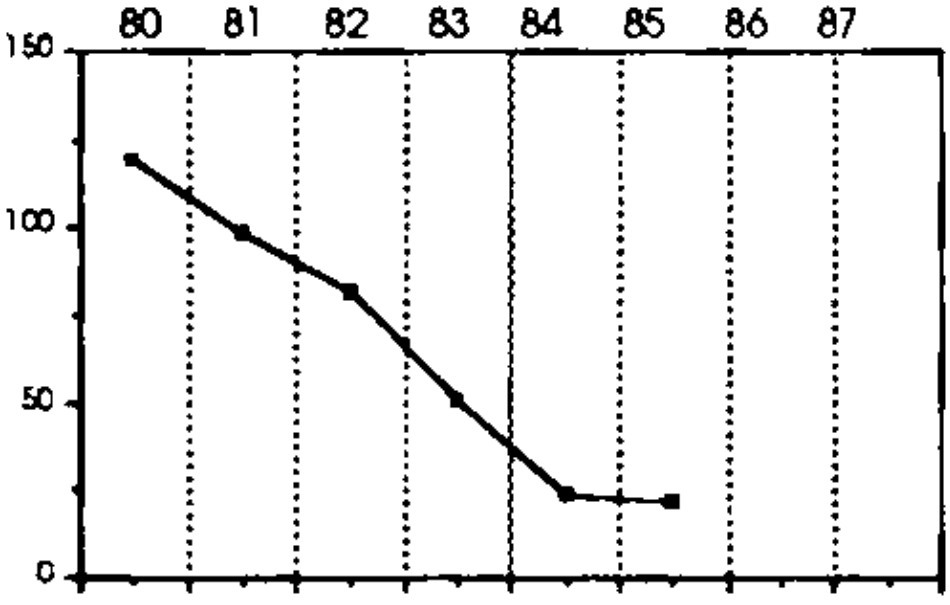
SEE OVER

GRAPHICS

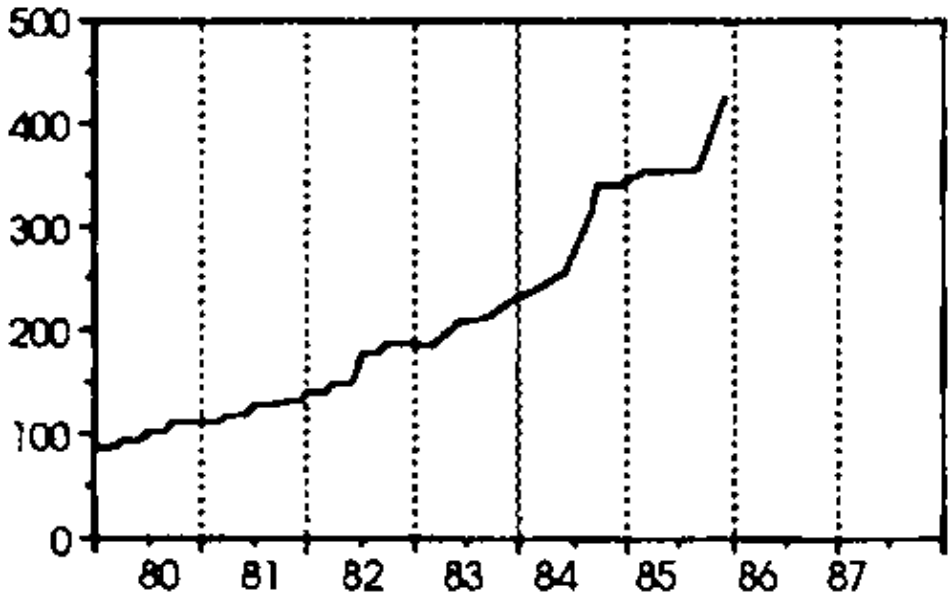
ADDITIONAL FOOD & ECONOMIC INDICATORS



CEREALS (1,000 MT)

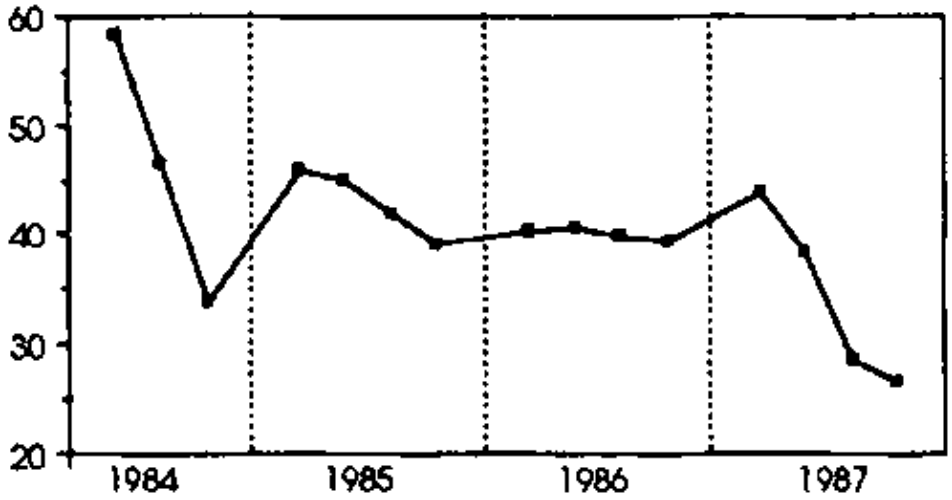


IMF CREDIT – (US $ MILLIONS)



FPI

QUARTERLY PREVALENCE OF UNDERWEIGHT CHILDREN



% PREVALENCE – Prevalence of underweight (<80% Wt/Age) in children aged under 5 years for the 2nd Quarter of 1984 to the last Quarter of 1987. JNSP Programme in Iringa Province.

Togo

Togo has a land area of 56,785 sq. km., with a population estimated in mid–'87 at 3.1 million, and increasing at a rate of 3.4% per annum. The population density is around 54 per sq. km. One quarter of the population is urban, with a particularly high proportion of these in the capital Lomé. The average annual rainfall is only 780 mm.

A civilian government was established after independence in 1960. However, between 1967 and 1979 the country was governed directly by the military. A new constitution was passed in 1979 and the "Third Republic" declared in 1980. The country is now headed by a constitutional president, supported by a national assembly. Togo has experienced a number of difficulties both directly and indirectly as a result of civil and economic upheavals in neighbouring countries. At various times trade embargoes and border closures have been experienced. Recently, however, these particular difficulties have been overcome, and Togo now enjoys the role of facilitator in respect of developing cultural and trading links between anglophone and francophone West African countries.

Agriculture

The agricultural sector contributes a modest 25% of GDP, but around 50% of export earnings. Sixty five percent of the labour force is employed in this sector. Togo shows inevitable similarities with neighbouring Benin in the recent period as far as the agricultural sector is concerned, sharing basically the same (if somewhat drier) climate, and experiencing the drought from 1981/82 through 1983T'84. In non−drought years, Togo is also self−sufficient in staples. Food production dropped dramatically during the drought years (see Food Production Index), recovering somewhat in '84, but then suffering a further decline which continued through to '87. Cereal production rose by 50% in the 1984 harvest over the previous year (Cereals: Production); unfortunately, it was down by 16% in 1985 on the bumper harvest of '84, and has continued at about this level since. Food shortages were seen again in 1987 as a result of badly distributed rains (Food Shortages). Cereal imports and aid in the form of cereals (Cereals: Imports & Aid, respectively) peaked in 1985 and have declined since. Cereal availability mirrors the production pattern closely: low between 1980 and '83, peak in 1984, falling off in successive years (Cereal Availability). Food availability (as kcals/caput/day) reflects the above trends (Kcals per day), particularly the sharp drop in 1983.

The Economy

In spite of a modest rate of growth in the economy since independence, the period 1980 − 1983 shows a sharp decline in real GNP expressed in local currency (GNP). Following 1984, there was a marginal increase which continued in 1985 and 1986. The Development Plan covering the years 1981 − 1985 had targeted a growth of 6.5% per annum in GDP. The failure to achieve this may be accounted for, at least in part, by the 3 years of drought and the slump in phosphate (a major export earner) production. These factors contributed further to a general economic recession embracing most countries in the region. The turn−around between '84 and '85 may be attributed to a reversal of these factors, i.e. the ending of the drought and an increase in phosphate production. However, the economy showed further deterioration during the last quarter of 1987, as weather conditions affected crop production, trading stagnated and investment fell. External public debt peaked in 1980 at just under $925 million; it declined thereafter until 1984 from which it has again risen sharply (Debt). The ratio of total debt to goods and services exported has risen from 0.08 in 1980, to just under 0.30 in 1985. The increase was particularly noticeable in 1984 and '85 (Debt Ratio) as the dollar strengthened. Debt rescheduling took place in 1979, 1981 and 1983 and it is anticipated that further rescheduling will be required during the latter half of the '80's. Against this background, the Government introduced measures of fiscal austerity as early as 1979. At that time the IMF was consulted and support sought. More recently, a series of 3−year rolling programmes were devised beginning in 1984 with increasing support from the IMF. The exchange rate (US$ per CFA Franc) reversed its long and substantial decline in 1985 (Exchange Rate). This series is the same as that for Benin, as both are tied to the French currency. The consumer price index (CPI) and food price index (FPI) are evidently highly correlated. Both rise sharply to peak in mid−1983 and after an immediate reduction show moderate fluctuation thereafter. The ratio of FPI to CPI rose until mid−1983 and declined subsequently (FPI/CPI).

Nutrition

Nutritional surveillance data from Togo has been collected by Catholic Relief Services, from approximately eighty government social welfare centres, located throughout the country. Weight−for−age data are collected monthly for children 6−60 months of age.

The monthly prevalence of children below 80% weight−for−age is summarized in the figure (Underweight Children) and shown deseasonalized in Prev. Deseasonalized. A serious nutrition situation existed in 1983, with the prevalence of underweight children varying from 39% to 51% over the course of the year. This rise coincided with a sharp decline in food availability on a national level in 1983, and with FPI and CPI reaching their maxima. Since 1983, there has been a steady improvement, while at the same time production and calorie data as well as CPI and FPI, show a return to pre−1983 or better levels. In 1986, the prevalence rate ranged from 30−32% and is comparable with the level in 1982. Data from the first six months of 1987 suggest a stable situation; nevertheless, production shortfalls during 1987 may have led to some deterioration in the latter part of the year.

Seasonality in nutritional levels is evident in Togo, with the highest prevalences in April to May. The best months nutritionally are from November to January immediately following the harvest. We note a marked similarity in the seasonal trend of the food price index (FPI) and the seasonal nutritional trend. Food prices peak in May−June and reach their lowest levels in the September to November period, just before nutritional levels are best.

We also note a marked similarity in the longitudinal profiles of the food price index FPI and the prevalence of low weight−age Prev. Deseasonalized. The year 1983 shows a dramatic increase, with marked declines in the

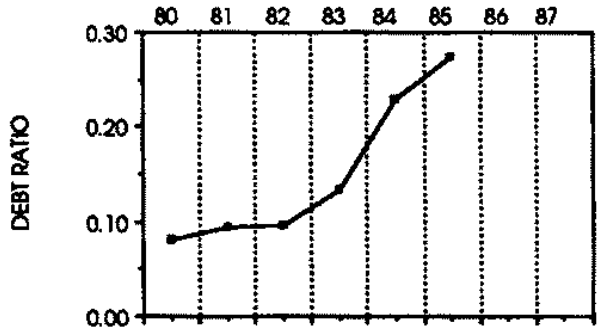
subsequent years. The upturn in FPI and CPI in late 1985 is seen within a few months in the deseasonalized data.

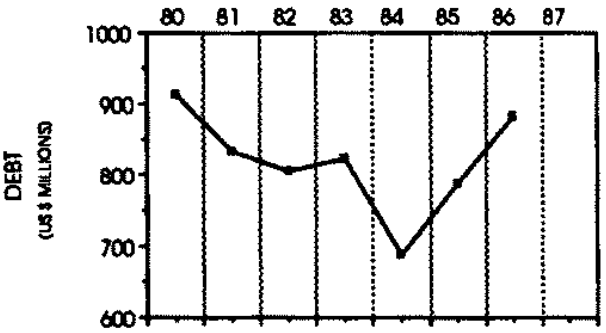
While the prevalence of underweight children peaked in 1983 and fell thereafter, the number of reported cases of measles shows a different annual trend (Measles). These latter declined from a high of 30,000 cases in 1980 to around 20,000 cases in 1981 and continuing at this level until 1983. It was in 1984 and '85 that numbers rose again to around 25,000 cases per annum. The numbers for 1986 represent a substantial drop compared to the previous 6 years.

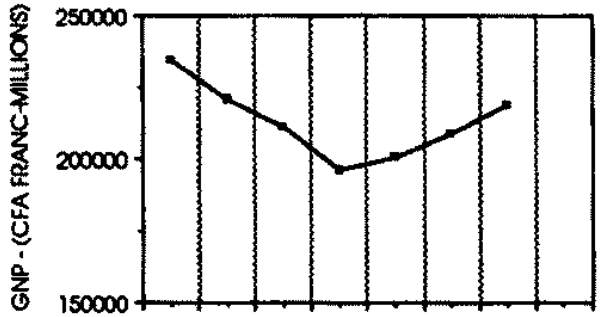
TOGO

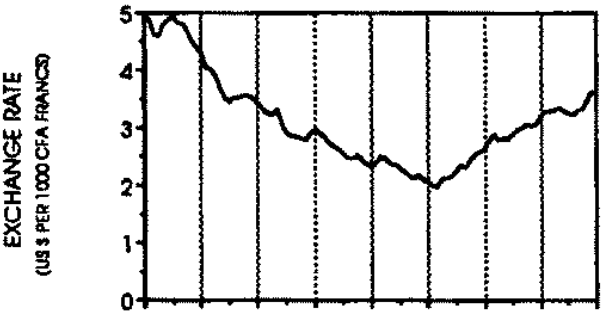
POPULATION: 3.1 M	IMR: 95
POPULATION DENSITY: 54 per sq. km.	U5MR: 156
POP. GROWTH RATE: 3.4% per annum	GNP (PER CAPITA): US$250
PERCENTAGE URBAN POP.: 24%	ESTIMATED PREVALENCE LEVEL UNDERWEIGHT CHILDREN: 20% – 30%

ECONOMIC INDICATORS

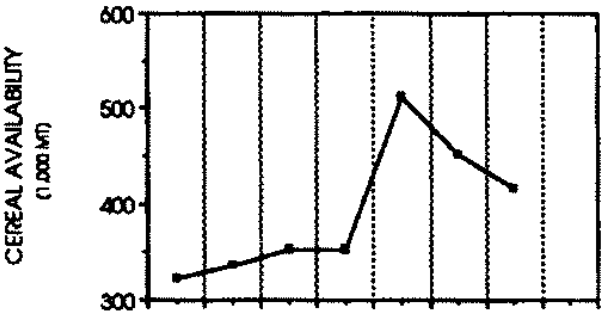


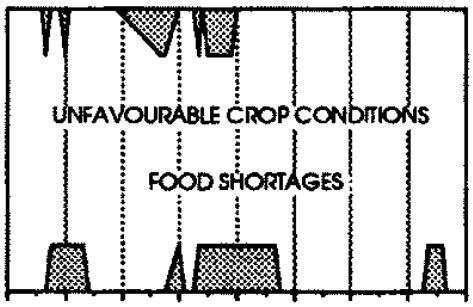


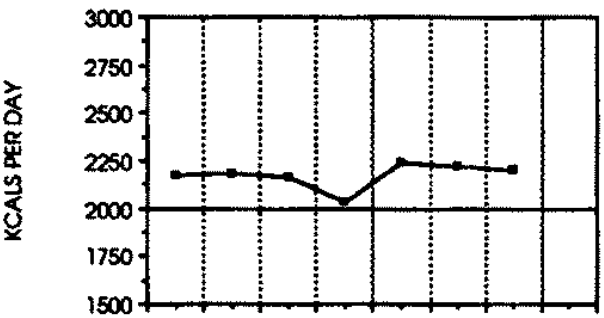


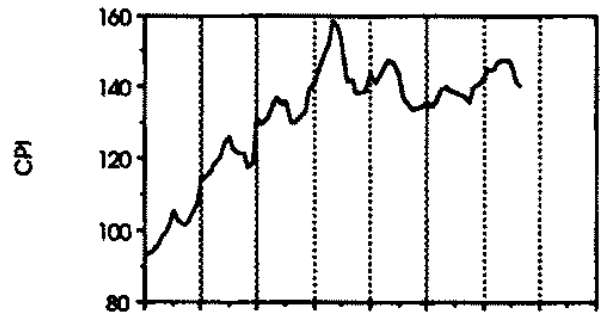


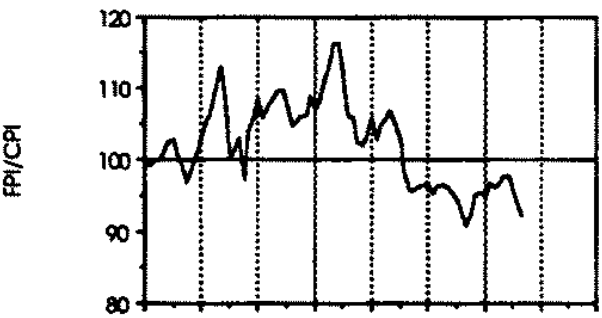
FOOD INDICATORS





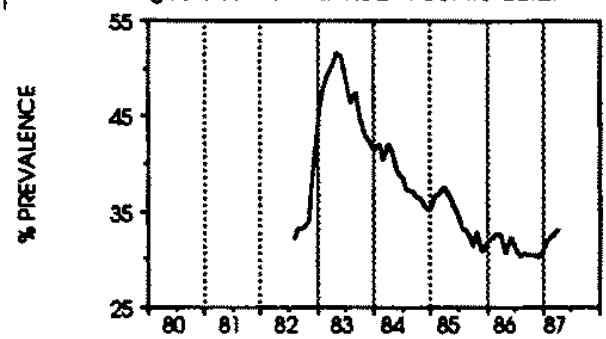




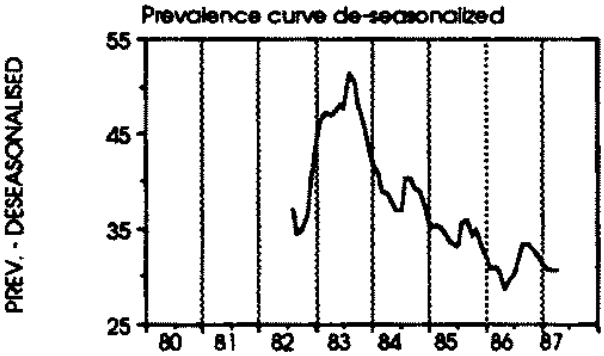


TRENDS IN UNDERWEIGHT CHILDREN

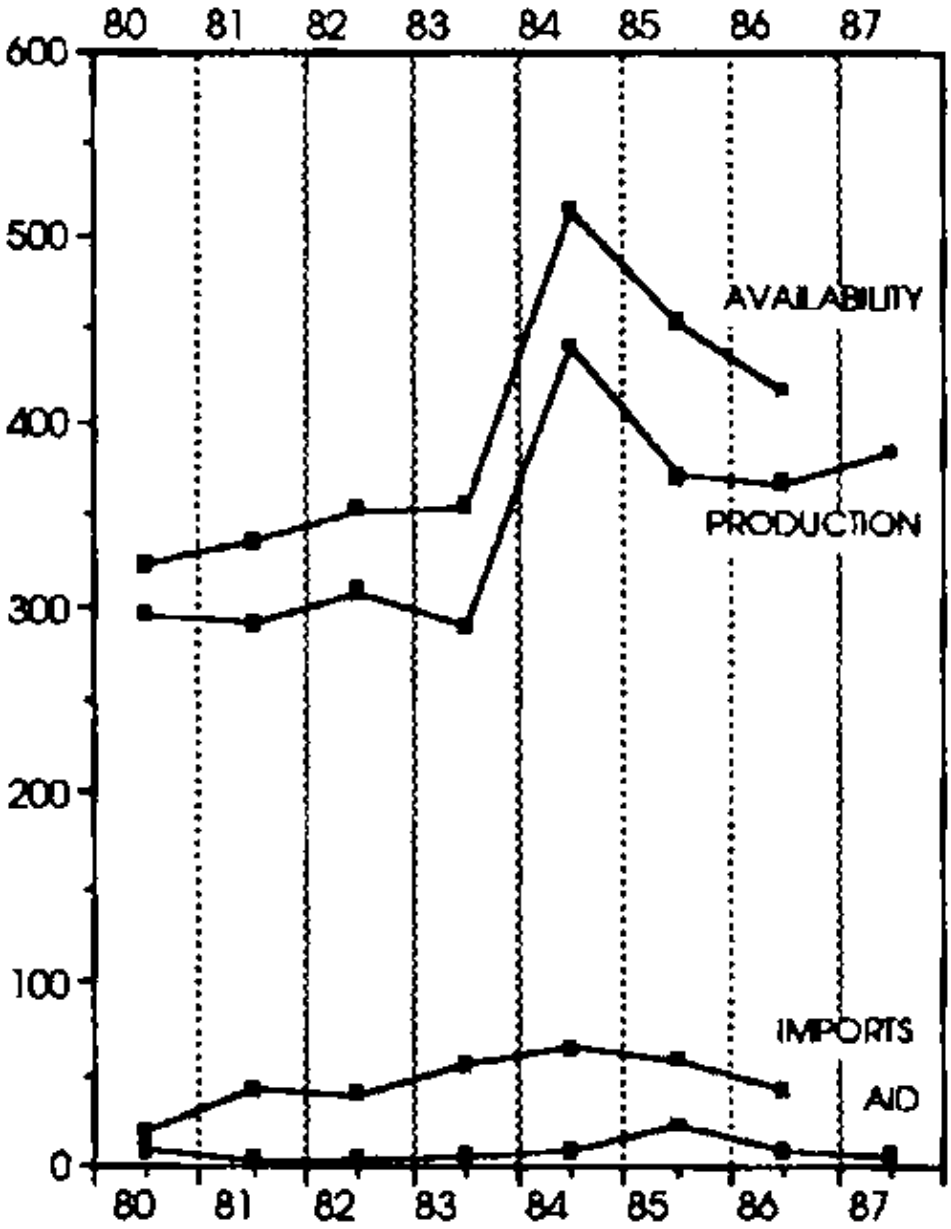
Prevalence of underweight (<80% Wt/Age) children aged 6-60 months. Health Centre data.



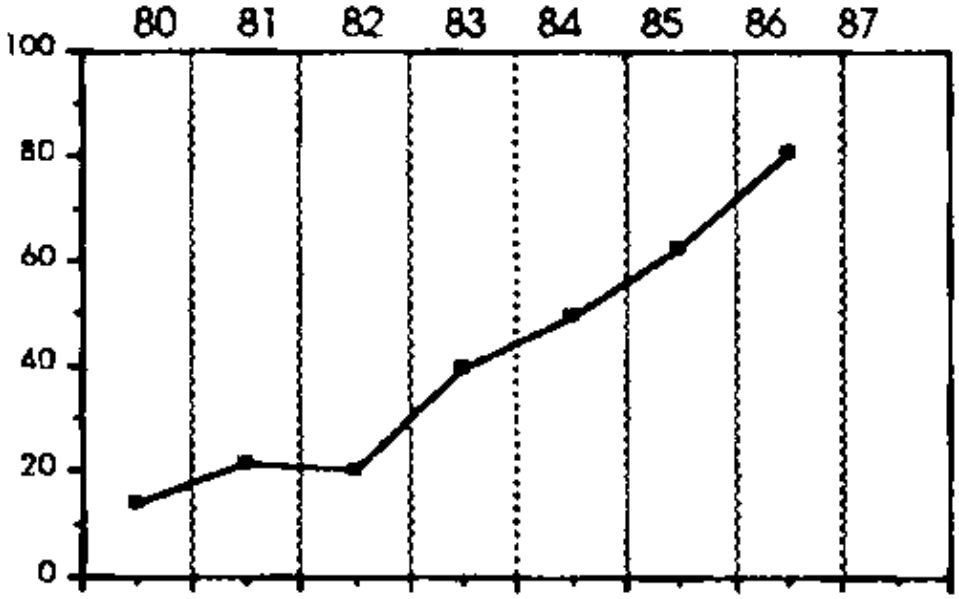
Prevalence curve de-seasonalized



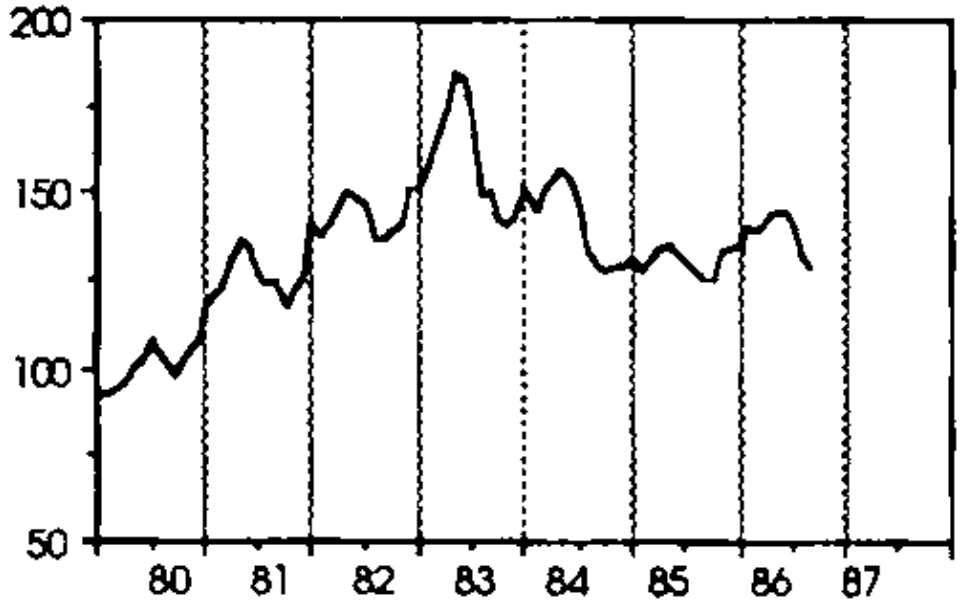
ADDITIONAL FOOD & ECONOMIC INDICATORS



CEREALS (1,000 MT)

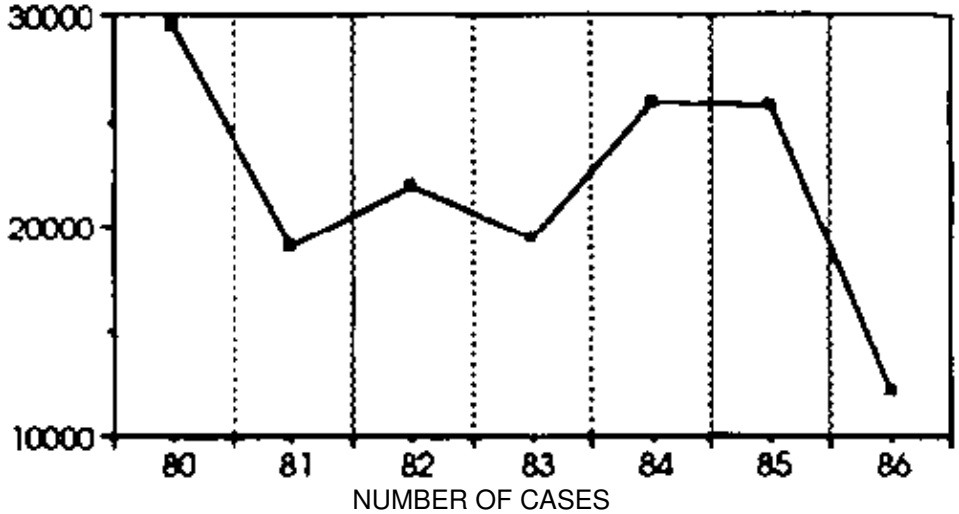


IMF CREDIT (US$ MILLIONS)



FPI

MEASLES



NUMBER OF CASES

ASIA

ASIA

Bangladesh

When it became a nation in December of 1971, Bangladesh was already suffering from over–population, malnutrition and unemployment. The country was faced with the need to revitalize a ruined economy following the civil war, to rehabilitate 10 million refugees, and to reconstruct the essential irrigation network. Harvests had been destroyed and substantial food aid was required to stave off starvation. This was forthcoming in 1972 and 1973, although shortages persisted and the price of grain rose rapidly. The worst floods in the country's history (until then) occurred in 1974 and destroyed the summer rice crop, precipitating a major famine which lasted until late 1975. The nutritional status of the population overall deteriorated rapidly and surveys found that the proportion of third–degree malnourished children exceeded 25%. Rural–to–urban migration increased dramatically following the famine with the percentage increasing from 6% in the early

sixties to around 15% in the mid '80's. Bangladesh is the world's most densely populated country at over 700 persons per square kilometre. About 80% of the population are considered to be living under the poverty line, and 50% of the rural population are landless in a predominantly agricultural nation.

Agriculture

Bangladesh's economy is largely based on agriculture. Some 62% of GDP is provided by this sector compared to only 12% by industry. Agriculture employs 80% of the economically active population. Although productively is low – over 70% of farms are less than 1 ha – the average annual growth in production of food grains during the second 5–Year Plan (1980–1985) was 3.5% which exceeded the rate of population growth (2.6%). The emphasis on high yield varieties of grain and support for irrigation has largely accounted for this. However, high production costs and reduced prices are factors against which further increases in production must contend.

The 1979 rice crop was drought–reduced and emergency relief was still being operated in the opening months of 1980. In spite of crop damage caused by a cyclone in April and localized flooding in September which destroyed a further 310,000 ha of rice, the 1980 harvest was substantially up on the previous year's. The record rice harvest of 1980 led to storage and marketing difficulties and low prices for paddy rice. This in turn ensured a reduced planting of 'Boro' rice (first crop) in December 1980. Heavy rains in March 1981 led to flooding and the loss of 300,000 tons of wheat and 120,000 tons of rice. July 1981 saw additional heavy monsoon rains only to be followed by drought in October and November. A cyclone in December caused flooding which resulted in the loss of 80,000 tons of rice. In consequence, rice production for 1981 declined in relation to the previous year's (see Cereals: Production & Food Production Index). There was widespread distress in the first half of 1982 owing to food shortages and high unemployment following the previous year's poor harvest (see Cereal Availability). A drought in late 1982 adversely affected the main–crop rice production at a time when the country had not fully recovered from the 1981 drought. However, overall cereal production was up slightly on the previous year's total. In early 1983 the Government launched an intensive cultivation programme to improve crop performance. September 1983 brought floods and damage to crops was estimated at a net loss of 100,000 tons. Nevertheless, as fertilizer use was 13% higher than for the corresponding period in 1982, the 1983 crop year reflected this with a further overall improvement on the previous two year's production (Cereals: Production).

The heavy pre–monsoon rains in May 1984 caused many deaths and considerable damage to crops and infrastructure. The Government organized a relief and rehabilitation programme and sought external emergency assistance. Extensive additional purchases of foodgrains were made to make–up losses (Cereals: Imports). Further damage to crops resulted in nearly 1 million tons being destroyed as a result of serious flooding in September 1984. Emergency food assistance was provided by donors and UN agencies (Cereals: Aid). The total losses for 1984 amounted to 1.54 million tons. To some extent this was compensated for by a higher than average yield from the wheat crop as a result of significantly increased plantings. In addition, Government–held stocks were disbursed which ensured, along with the timely arrival and distribution of food aid, that the average food supply remained stable (Kcals per day). Supply shortages were experienced in early 1985 and prices were 15% – 20% higher than normal until a higher than average offtake of Government foodgrain served to correct this. A cyclone and associated tidal waves in May caused extensive damage to crops and the death of 10,000 people on off–shore islands and southern coastal lands. In spite of this cereal production for 1985 was up by about 3% on 1984. Production continued upwards in 1986 although imports and aid were reduced which was reflected in cereal availability (Cereals and Cereal Availability). The first quarter of 1987 looked favourable. The harvest of the main–crop 'Aman' paddy rice in December 1986 had been equal to target, although just down on the previous year. The wheat harvest, reflecting favourable weather, higher plantings and increased use of fertilizer, was up by 5%. However by mid–year there were reports of the food supply being tight and Government stocks being at their lowest levels for several years. Widespread flooding occurred in July and August with rainfall 50% higher than expected. Serious crop damage ensued with losses of around 2 million tons (estimated as milled grain). September brought flooding of the Ganges and over 23 million people were affected. More than 25 million cattle died as a result.

Foodgrain prices were up 20% and emergency food aid was sought. Production for 1987 was down on the previous year's by over 3%. Cereal imports exceeded the previous highs in '72/'73 and '84/'85 (Cereals: Imports). The beginning of 1988 was favourable: the wheat yield was up, and the prospects for the early rice crop – 'Boro' – were good. By July extensive floods had destroyed 1 million tons of rice and 200,000 bales of jute and caused severe damage to infrastructure and many deaths. Over 28 million people were made homeless or otherwise affected. The main 'Aman' crop was badly damaged and expected to fall well below 1987's harvest. Government stocks were high at mid–year and adequate to meet needs for the short run; however, emergency assistance was required and the Government appealed to the international community

for help. The total cost of the 1988 floods are estimated to be in the region of $1.1 billion.

The Economy

The most important source of foreign exchange for the country has been jute, the country's traditional cash crop. However, due to the decrease in international demand, prices have fallen by 8% per year on average. Even the cost of production is not currently being met, especially following drastic decreases in subsidies. A 30% decrease on acreage occurred between 1970/75 and 1980/'85. The situation changed in 1984 and '85 when the price of jute increased sharply and this was followed by a 51% increase in production during 1985/'86. The market subsequently collapsed.

A gradual devaluation of the Taka against the US dollar has taken place with the aim of increasing profitability and growth (Exchange Rate). The long−term negative balance of payment and terms of trade, have left the country with serious budget deficits. This has been compensated for to a degree by foreign assistance and heavy borrowing. Consequently, debt outstanding and disbursed (Debt) has been growing steadily − nearly doubling between 1980 and 1985. At the beginning of the '80's, high oil prices and poor jute prices resulted in a 35% drop in the balance of trade. With the value of imports around three times that of export earnings, the debt service ratio has been increasing sharply (against a declining trend between 1975 and 1980) (Debt Ratio).

During 1981 and 1982, a significant reduction in food subsidies resulted in an increase in the price of rice and wheat by 13% and 7%, respectively. By 1985, the consumer price had increased by 75% and food prices by a similar amount (CPI, FPI). Between 1981 and early '83, food prices rose at a lower rate than consumer prices generally. This trend was reversed thereafter (FPI/CPI). In 1987 increased food prices caused the inflation rate to rise by 11%.

Nutrition

Periodic occurrences of natural disasters have plagued Bangladesh with often severe consequences for human health and nutritional status. The available evidence for nutrition derives from a number of not strictly comparable surveys conducted since the mid−seventies[1]. These relate to the rural population only (Wasted & Stunted Children).

> [1] These surveys have been conducted by different organizations and as a consequence differences in important features occur. For example, sample sizes differ significantly, as do age ranges. The results tabulated here are presented and discussed in the 'Report of the Child Nutrition Status Module: Bangladesh Household Expenditure Survey, 1985−86', Bangladesh Bureau of Statistics, 1987.

From the results of these four studies the evidence is suggestive that the prevalence of wasting has declined dramatically over the ten year period between 1975 and 1985. One possible explanation for the large difference between the results for 1981/82 and 1982/83 may be due to seasonality, as the latter survey was conducted during the Dec−April period during which there is a seasonally low prevalence of wasting. The 1985 survey was conducted in four rounds over the entire year and is therefore likely to be a very good estimate of the degree of wasting during that year. Thus it seems probable that the prevalence of wasting has indeed declined during the 1980's.

The prevalence of stunting has also evidently decreased between the mid−seventies and the mid−eighties. Between 1982/'83 and 1985/'86 this trend may have reversed. This conclusion is felt to be more justified, since stunting, unlike wasting, is not so much affected by seasonal effects introduced by the timing of a survey. (However, any age−related bias resulting from differences in sample coverage would tend to give a higher prevalence estimate in the later years when the children between 3−5 months were not included. Thus the differences in prevalences between 1982/83 and 1985/86 may not be as pronounced as it appears.)

From the most recent study area differences can be contrasted. The prevalence of underweight (Urban/Rural Prevalences) shows some differences between Urban and Rural groups, although this is not consistent across the Gomez classification. Seasonal differences in wasting are quite pronounced and are in accordance with expectation as the 'lean' period is from around May to September (Seasonal Prevalence of Wasting).

BANGLADESH

POPULATION: 106.7 M

POPULATION DENSITY: 741 per sq. km.

POP. GROWTH RATE: 2.6% per annum

PERCENTAGE URBAN POP.: 13%

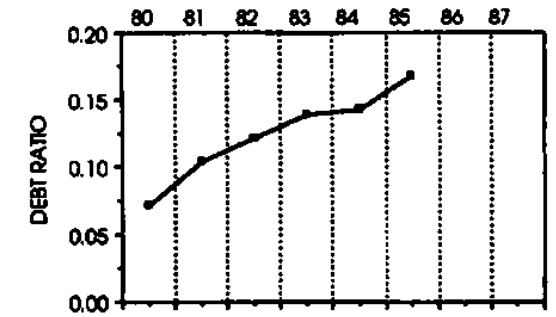
IMR: 120

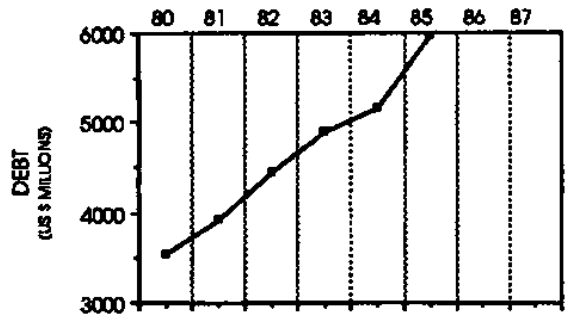
U5MR: 191

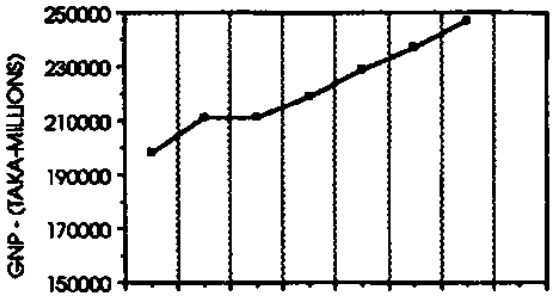
GNP (PER CAPITA): US$160

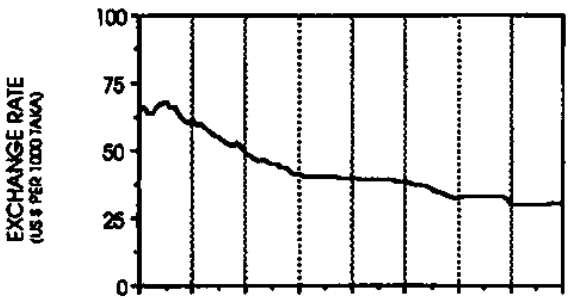
ESTIMATED PREVALENCE LEVEL UNDERWEIGHT CHILDREN: 70% – 80%

ECONOMIC INDICATORS

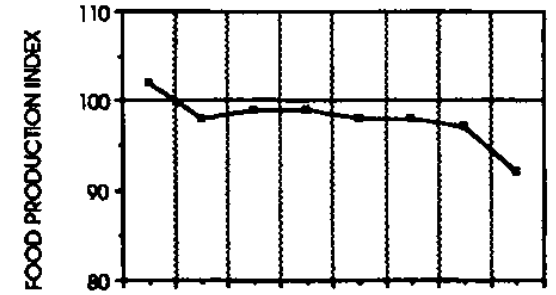


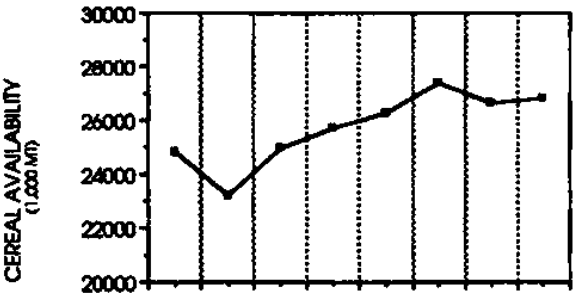


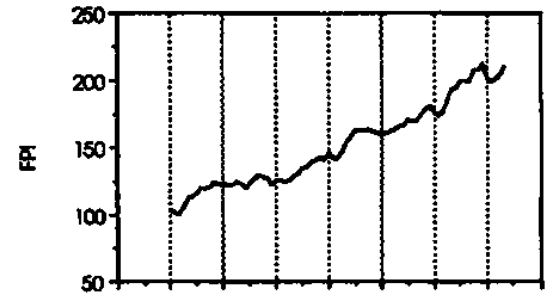


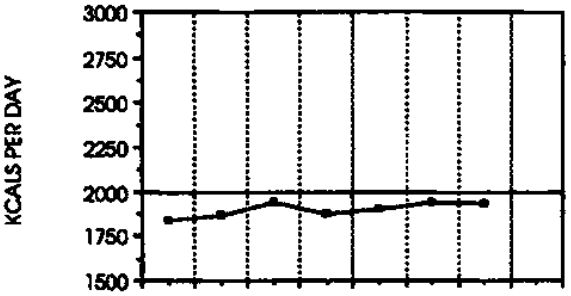


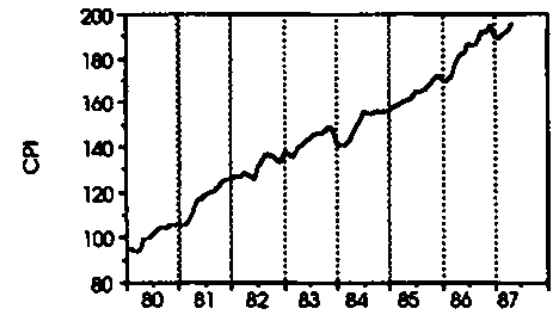
FOOD INDICATORS

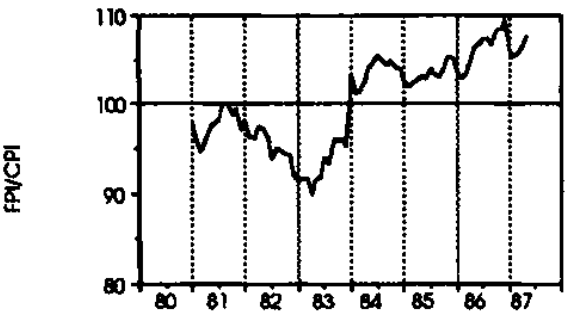




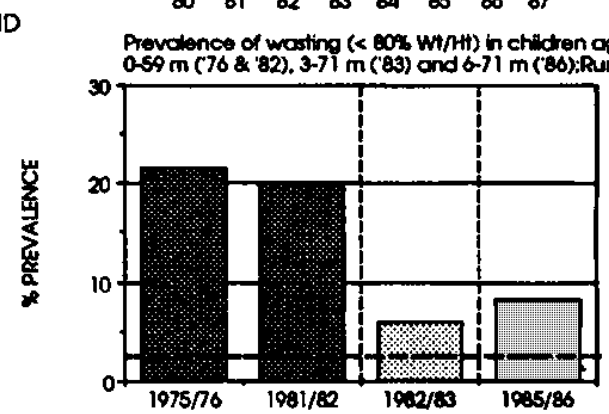


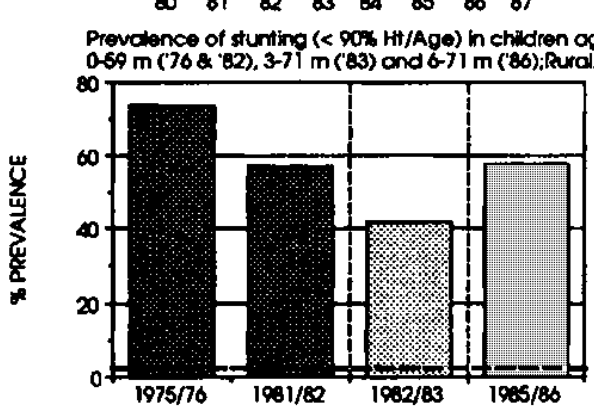




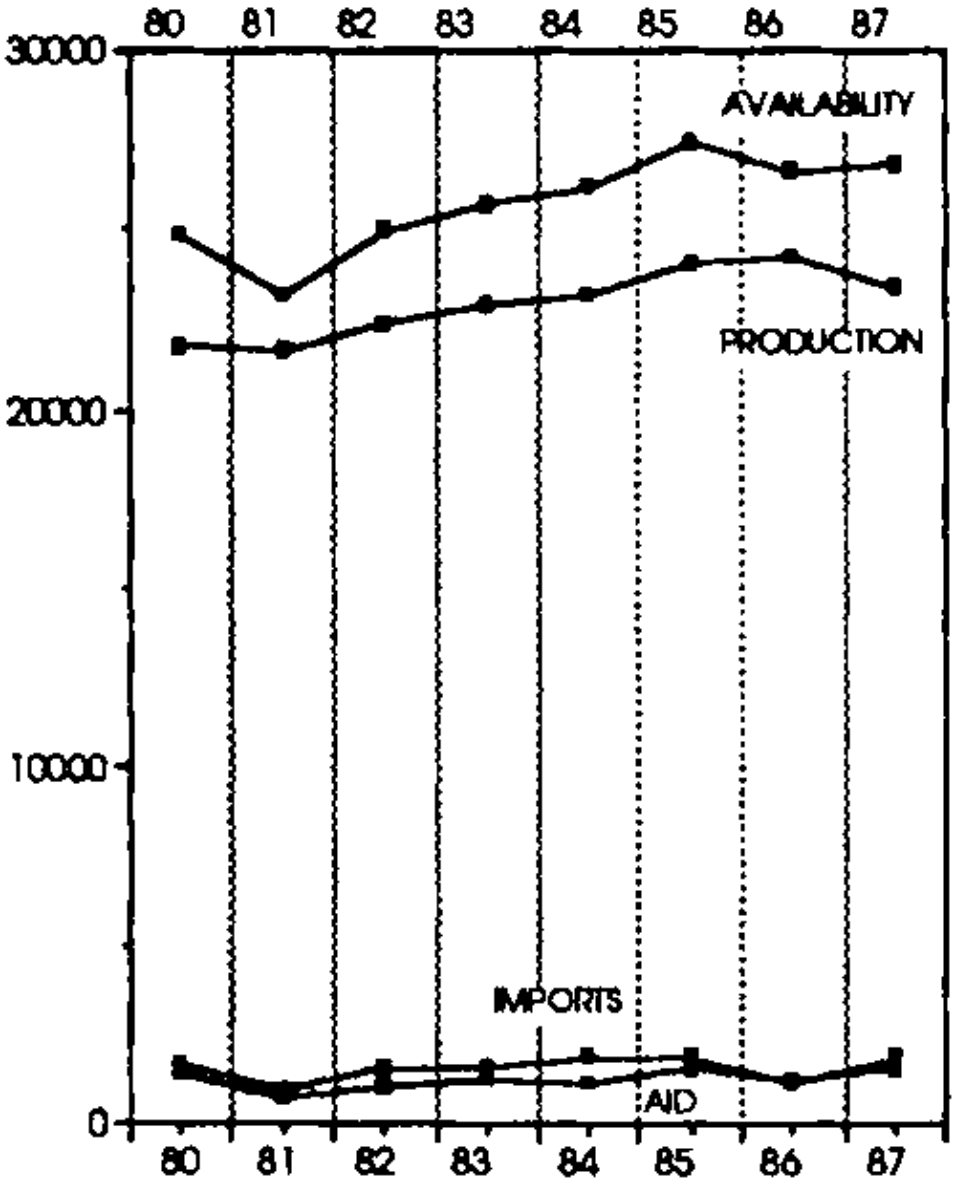


WASTED AND STUNTED CHILDREN

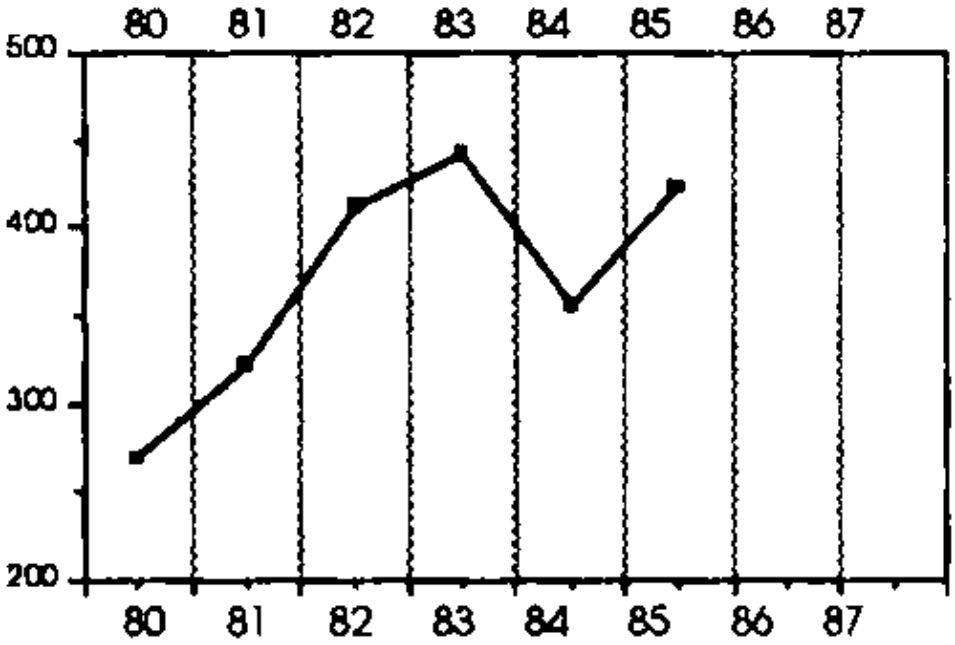




ADDITIONAL FOOD & ECONOMIC INDICATORS

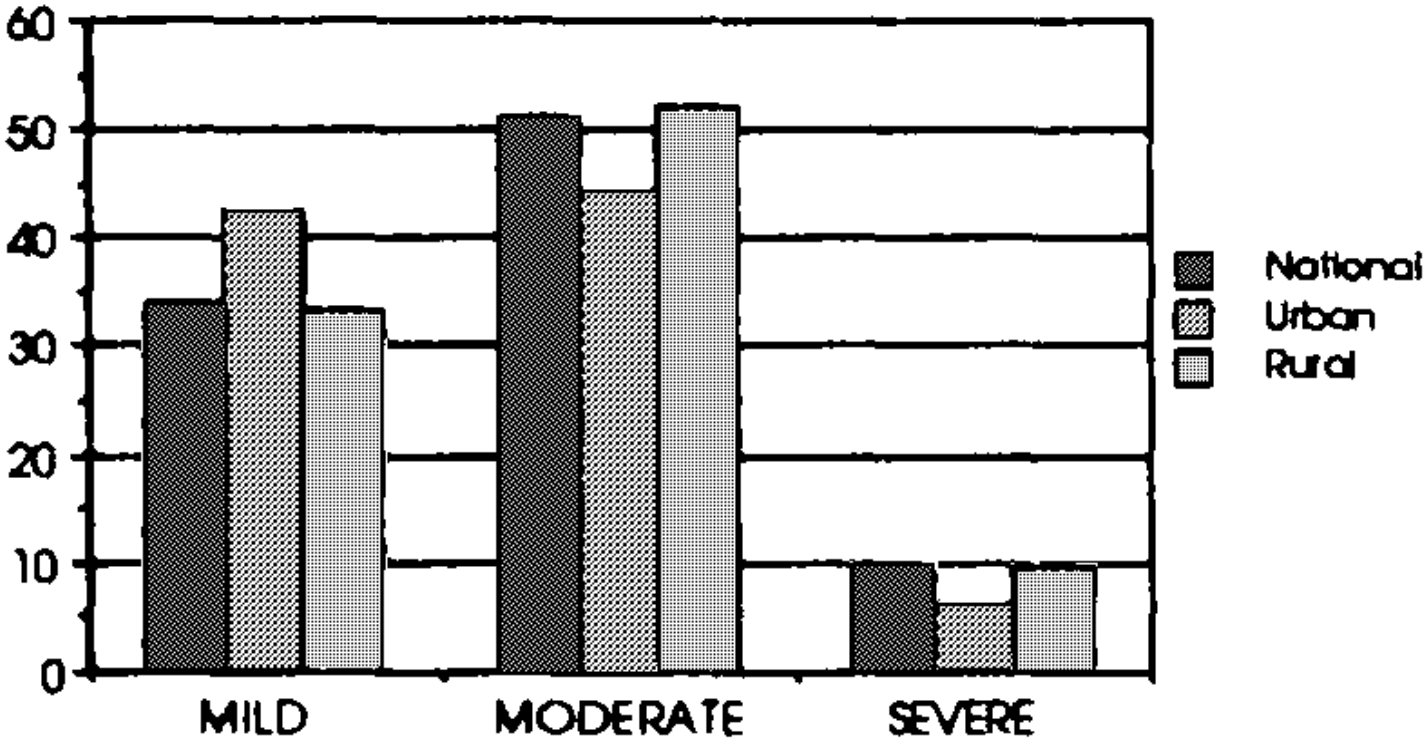


CEREALS (1,000 MT)



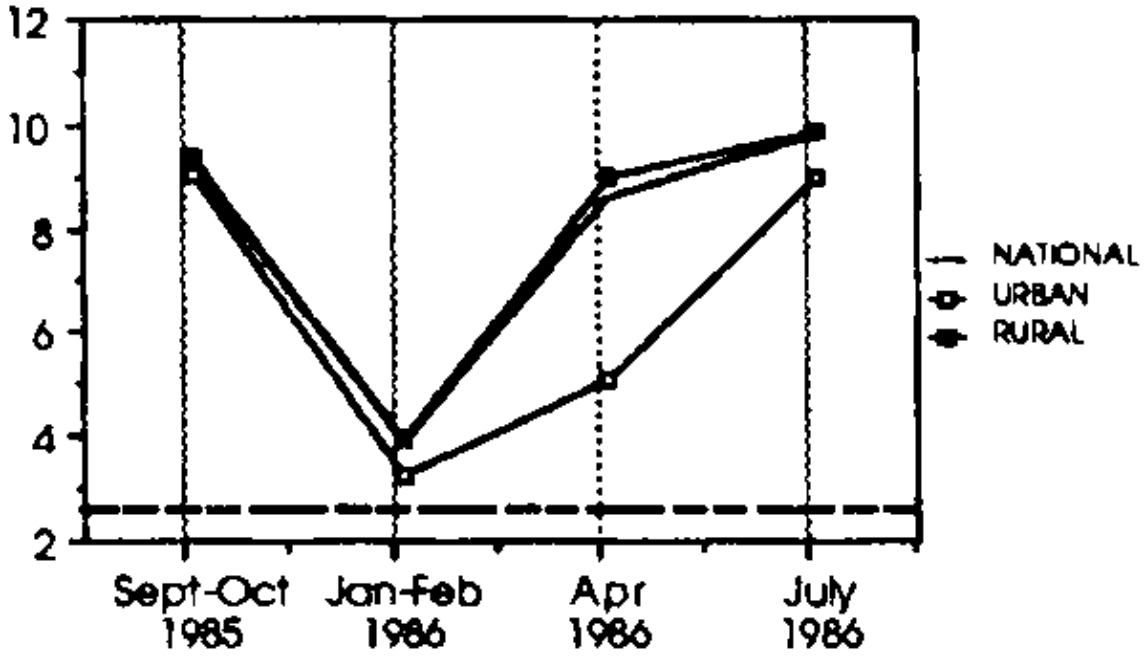
IMF CREDIT (US$ MILLIONS)

URBAN/RURAL PREVALENCE OF WASTING



% PREVALENCE – Prevalence of underweight (Wt/Age) in children aged 6–71 months, 1985/'86. Gomez Classification.

SEASONAL PREVALENCE OF WASTING



% PREVALENCE – Prevalence of wasting (<80% Wt/Ht) by season and area.

China

Since the end of the 1970's, the Chinese economy has been subjected to massive restructuring, including a series of reforms and programmes of economic readjustment, to correct economic imbalances.

Economic reforms began in 1978. To achieve economic growth a multi–part strategy was planned: industrial growth (through large scale imports of industrial plant from overseas), expansion of China's international relations, growth in agricultural output supported by improving mechanization programmes and increasing incentives, and decentralization of economic decision–making from state to regional levels. China joined the World Bank and the IMF in 1980. Based on the policies of readjustment initiated in December 1980, during 1981 and 1982 considerable progress in meeting targets was made. A number of the targets planned to be reached by 1985, in the 1981–85 plan, had been achieved by 1983.

Stabilization plans supported by a standby arrangement with the IMF led to a considerable surplus in the external current account in 1982 and '83. Both agriculture (see Food Production Index) and industry performed well. There was a 9.2% increase in grain output in 1982. Total cereal production (Cereals: Production) showed an impressive increase especially after 1981, leading to a sharp decrease in cereal imports required in the period 1983–85 (Cereals: Imports). Total cereal aid thus decreased in 1983 (Cereal: Aid). Grain, which provides the bulk of the population's calorie intake, is the most important agricultural product of the country. Production of other crops also improved considerably. Total cereal availability rose between 1980 and '84, but decreased in 1985 (Cereal Availability). Food availability (as measured as Kcals.) increased significantly during 1982–85 (Kcals per day).

1983's economic growth continued in 1984. This was also true for agriculture, with gross production increasing by 20% over 1980 and continuing upwards through to 1987 (Food Production Index). Grain output went up by a further 5% and the growth in industry (14%) was significantly higher than planned. However, external imbalances reappeared in the second half of 1984 leading to an expansion in credit, rising prices, declining reserves and a large deficit in the current account from the surplus in 1983. Total cereal availability decreased in 1985 (Cereal Availability) following a decrease in cereal production (Cereals: Production) and cereals imported (Cereals: Imported). Production rallied in 1986 and continued upwards in 1987.

The rate of currency devaluation slowed down in 1983, increased considerably in 1984 and to a much higher extend in 1985 and 1986 (Exchange Rate). Adjustment measures resulted in a slowing down of the growth in output and a deficit of $12 billion (4.5% GDP) in the external trade balance arose mainly due to a 60% increase in imports.

Since 1985 the Chinese economy has been facing several difficult problems particularly in relation to the control of investment and the balance of payments. Foreign loans amounted to 2500m Yuan in 1985, and this

figure doubled in 1986. However, it must be appreciated that although the external debt nearly quadrupled between 1980 and 1984 (Debt), the GNP almost doubled, and the debt service ratio has been maintained at a very low level at just over 1% (GNP & Debt Ratio).

Total foreign debt increased from US$20 billion in 1985 to US$26 billion in 1986 and US$32 billion by the end of 1987. This showed a modification of the previous policy of keeping foreign borrowing levels low. To control imbalances in the rate of foreign investment and foreign loans, stabilization measures including another 15% devaluation of the currency were taken in 1986. Limits on domestic and foreign loans were placed to reduce the account deficit to 4% of GDP in 1986 and down to 2.3% of GDP in 1987. Tighter controls on imports in 1986 reflected in an improvement in China's trade and balance of payments position, making the value of imports much lower than the value of exports. This resulted in the reduction of the visible trade deficit to some $12000m and down to only $2000 m by the middle of 1987.

1987 saw further limited reforms in the Chinese economy. While economic growth was somewhat faster in 1987 compared to 1986, the Government had to face problems such as the unsatisfactory summer harvest, and a rise the budget deficit. Drought by the end of July had damaged 26 million ha. of summer wheat. In the first half of 1987, prices, especially for non−staple foods, rose by 13.9%. This led to temporary rationing of some items, e.g. eggs, in Peking. Price stability thus became one of the economic priorities in China in 1987 and in late August 1987, the Government imposed price controls over a wide range of products.

Nutrition

Survey's conducted in Beijing on school−children between the mid 1950's and mid 1980's, show a remarkable increase in mean weights, especially of the 13 year old children (males and females). Much of the gain had taken place by 1979 for all age groups. Between '79 and '85, only the 13 year olds continued to increase in mean weight (Mean Weights). A similar gain −perhaps not as pronounced − is to be seen in mean heights in Beijing for both sexes (Mean Heights & Weights). A contrast of the mean weights for preschool children based on National (Urban only) data between 1975 and 1985 show gains for the 0−1 month babies, but little change for the remaining age groups. A comparison of the latest reported mean weights and heights for boys and girls with the WHO/NCHS standards shows that Chinese children are now approaching the reference medians, especially with respect to stature.

CHINA

POPULATION: 1,088.6 M IMR: 33

POPULATION DENSITY: 114 per sq. km. U5MR: 45

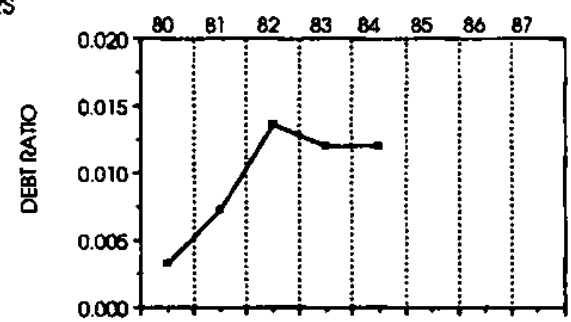
POP. GROWTH RATE: 1.2% per annum

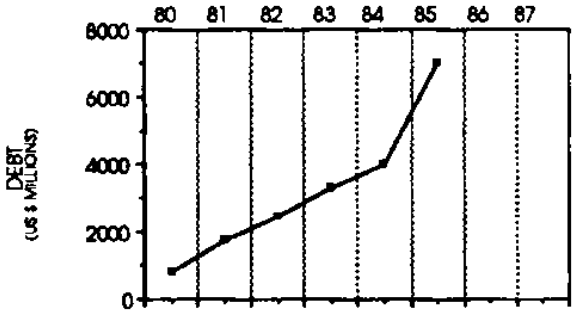
GNP (PER CAPITA): US$300

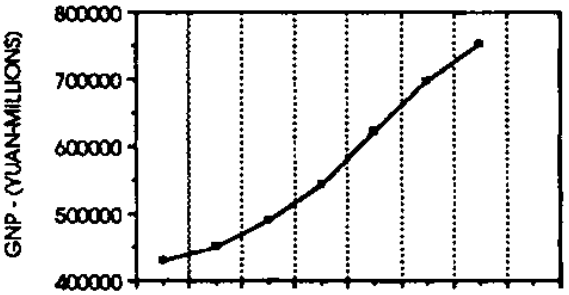
PERCENTAGE URBAN POP.: 21%

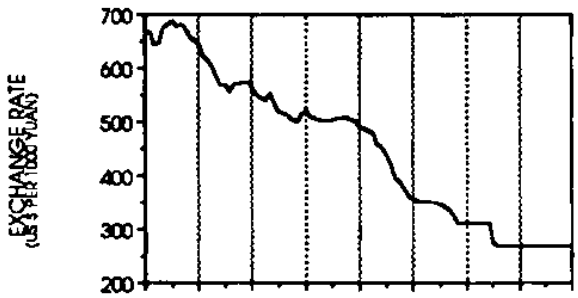
ESTIMATED PREVALENCE LEVEL UNDERWEIGHT CHILDREN: –

ECONOMIC INDICATORS

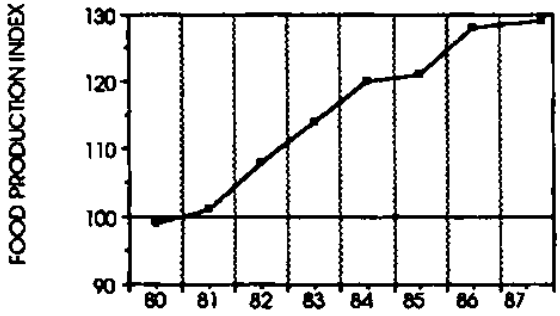


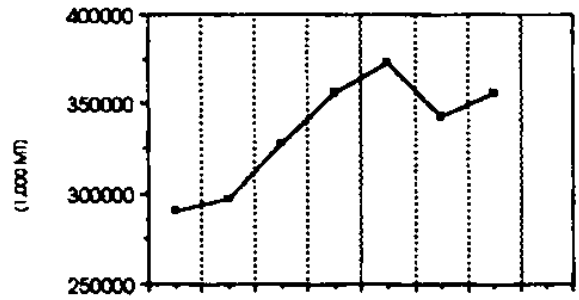






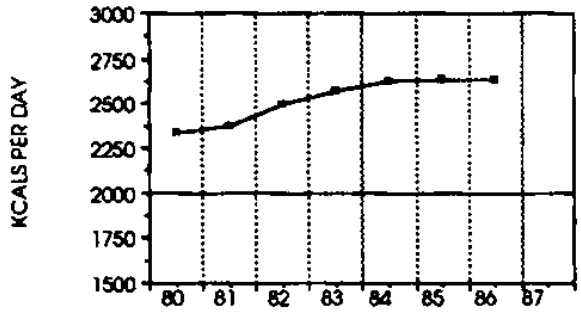
FOOD INDICATORS





FPI

NOT AVAILABLE



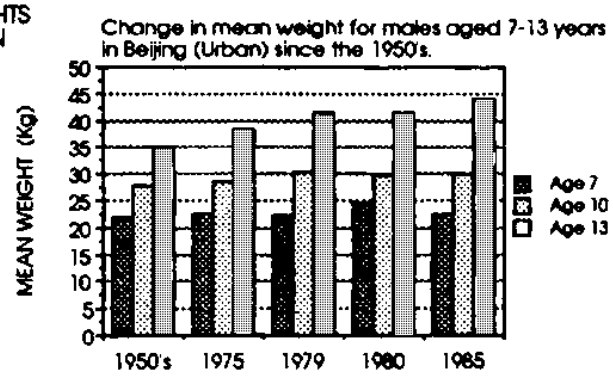
CPI

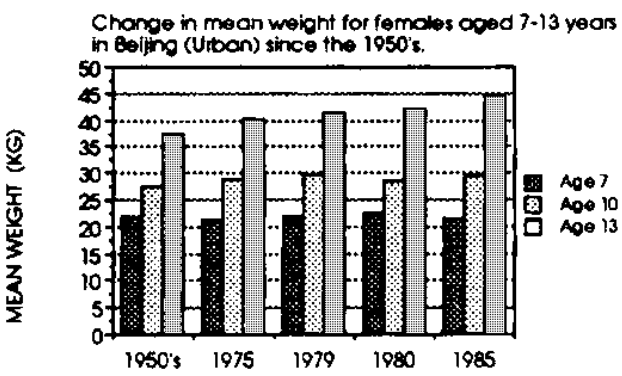
NOT AVAILABLE

FPI/CPI

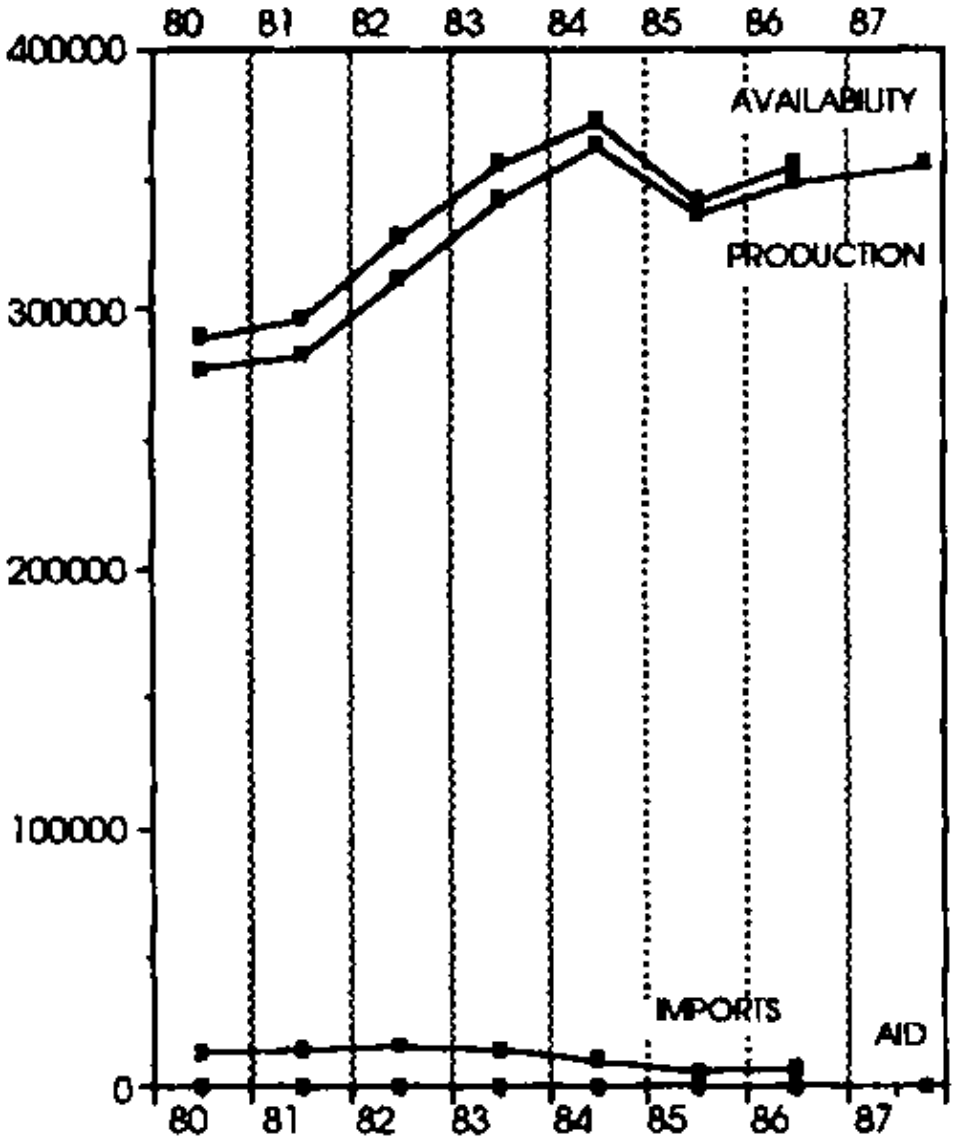
NOT AVAILABLE

MEAN WEIGHTS OF CHILDREN

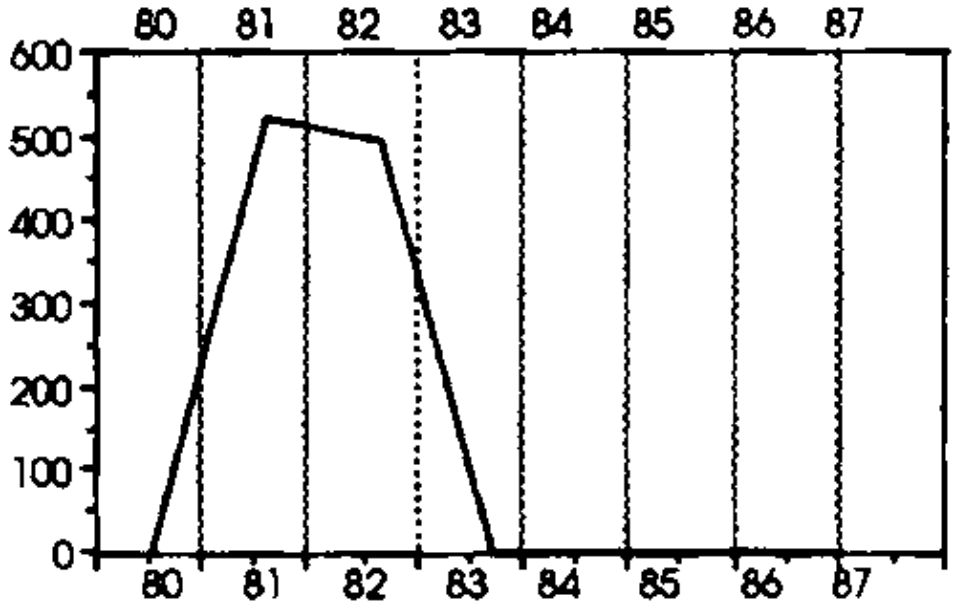




ADDITIONAL FOOD & ECONOMIC INDICATORS

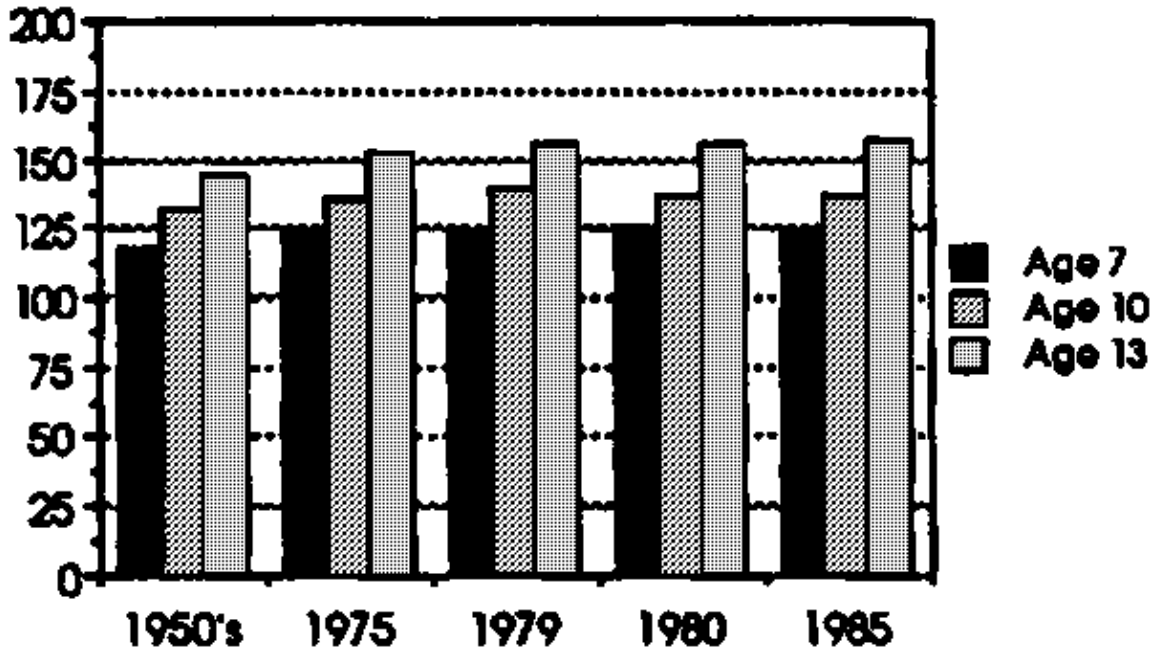


CEREALS (1,000 MT)

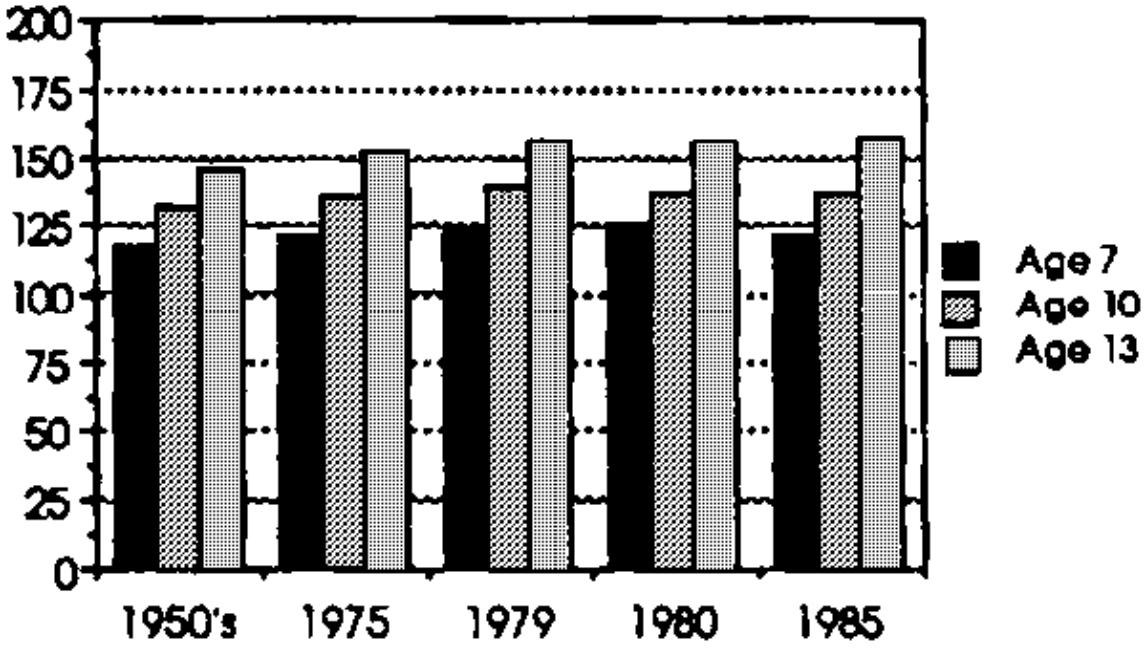


IMF CREDIT (US $ MILLIONS)

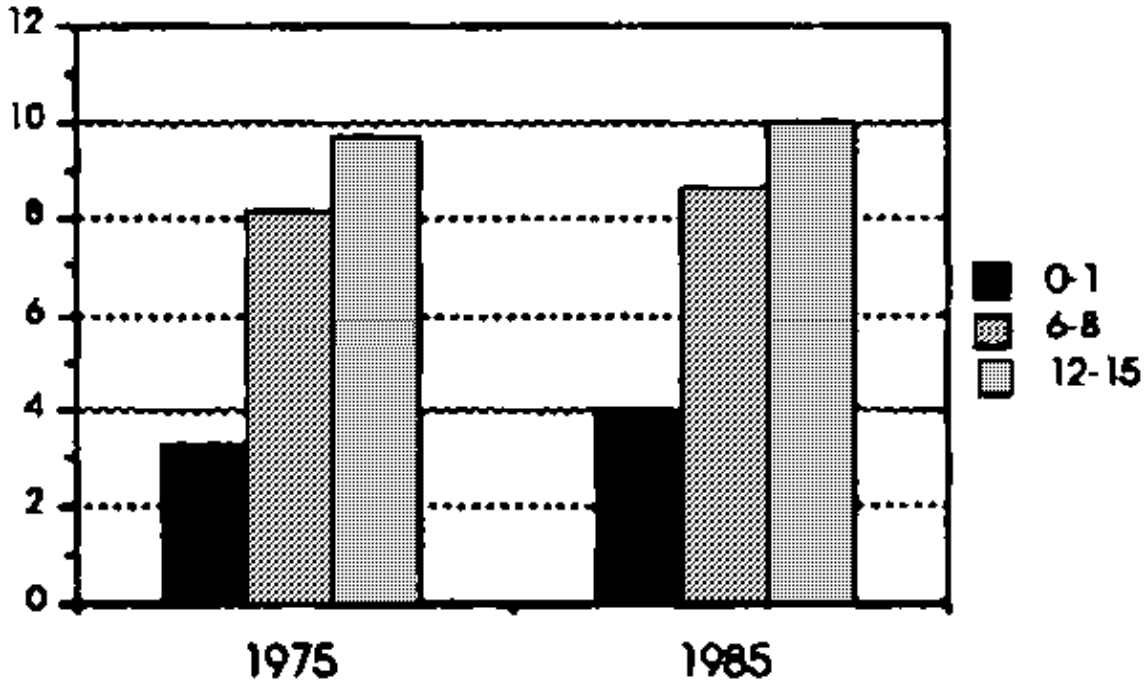
MEAN HEIGHTS & WEIGHTS



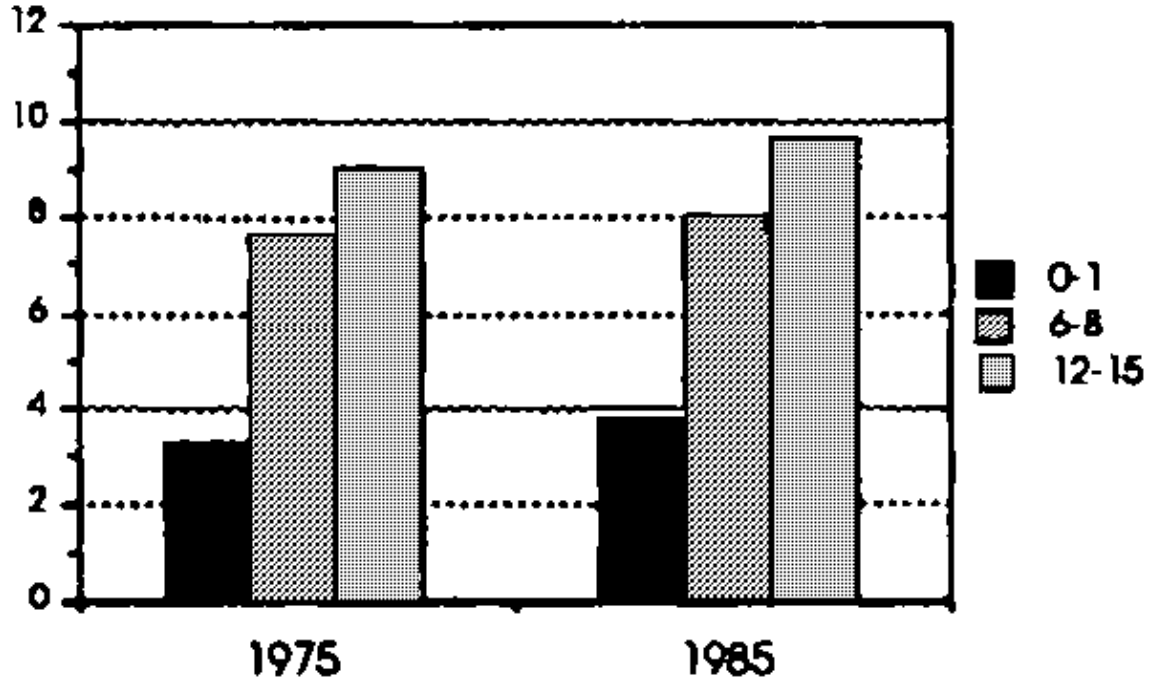
MEAN HEIGHT (CM) – Change in mean height in males 7–13 years in Beijing (Urban): 1950's to 1985



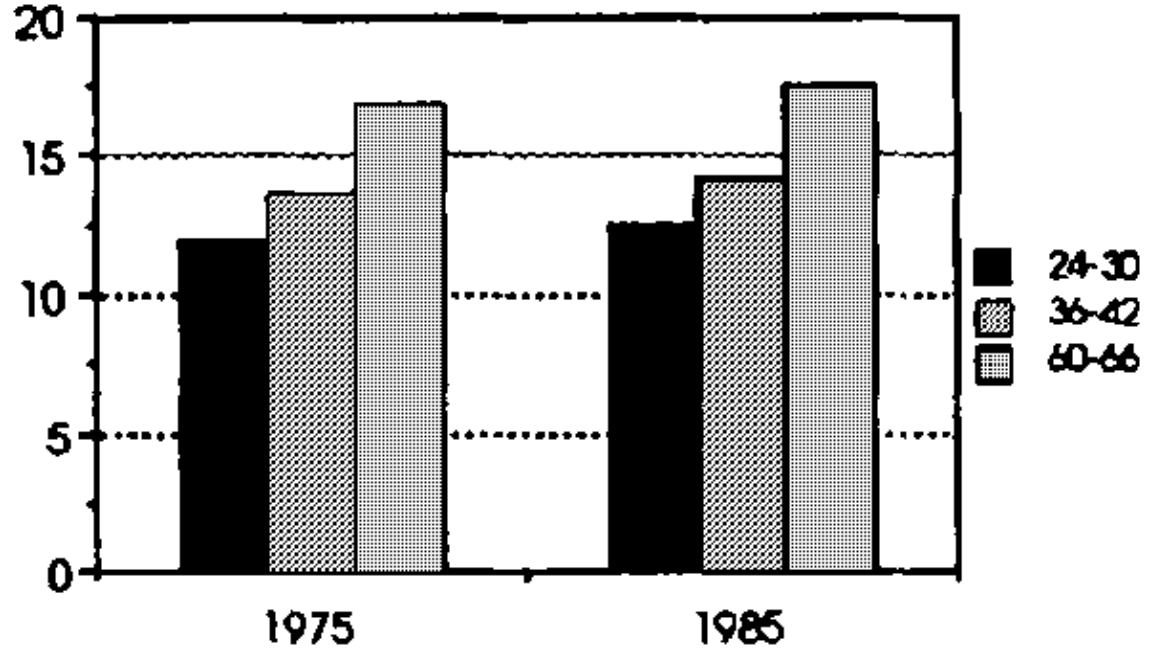
MEAN HEIGHT (CM) – Change in mean height in females 7–13 years in Beijing (Urban): 1950's to 1965



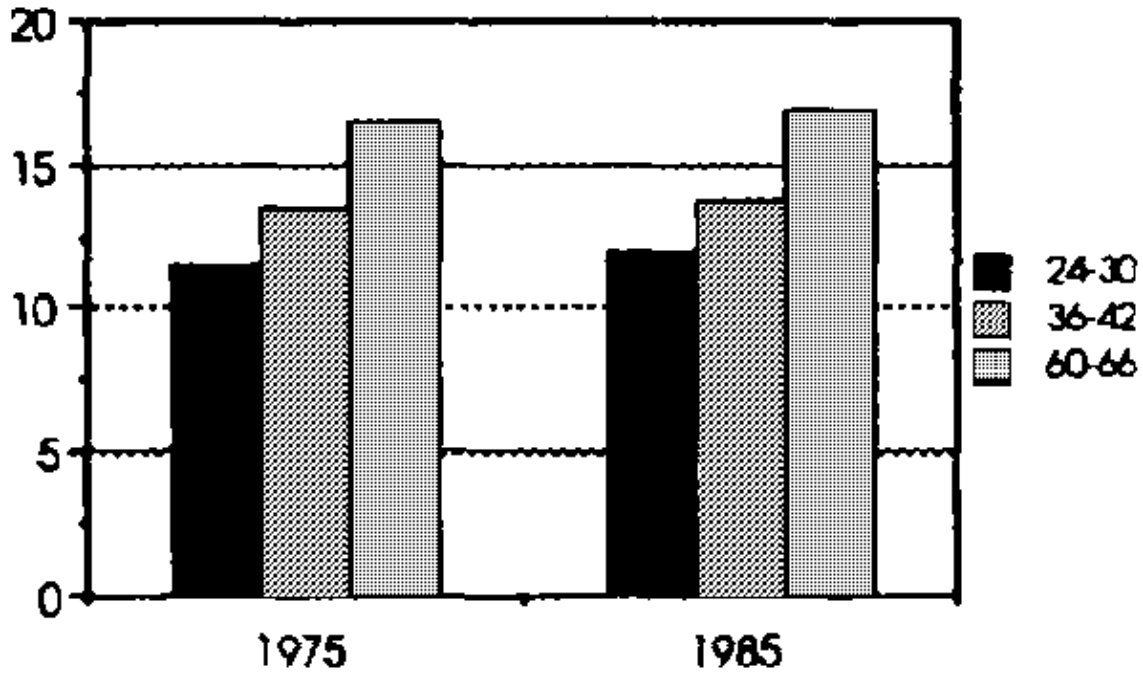
MEAN WEIGHT (KG) – Change in mean weight in males 0–15 months National (Urban): 1975 & 1985



MEAN WEIGHT (KG) – Change in mean weight in females 0–15 months National (Urban): 1975 & 1985



MEAN WEIGHT (KG) – Change in mean weight in males 24–66 months National (Urban): 1975 & 1985



MEAN WEIGHT (KG) – Change in mean weight in females 24–66 months Notional (Urban): 1975 & 1985

Indonesia

Indonesia, with an area of 1,904,569 sq. km., is the world's fifth most populous nation. About 6,000 of 13,600 islands of Indonesia are inhabited. Around 65% of the total population live on the three islands of Java, Madura and Bali, which together account for only 7% of the total land area. Due to the very high population density these most developed and most fertile islands of Indonesia also accommodate some of the poorest elements of the community. Over the course of the last 25 years or so, the Infant Mortality Rate (see Infant Mortality) has declined by nearly one half between 1960 and the present.

The Economy

Serious disruption of the economy in the pre– and post independence years, resulted in its virtual collapse by 1965. A huge external debt, budget deficits of around 50% of total government expenditures, a very high annual inflation rate of over 650%, together with a very low foreign exchange reserve were results of profound economic deterioration during the mid–1960s.

In 1969 a series of five–year Development Plans were begun with considerable external financial support. The first (1969–74) and second (1974–79) Development Plans aimed at achieving agricultural growth and increasing food production. In the 2nd. 5–year Development Plan, a more even distribution of economic development and industrial growth was emphasized.

Many of the targets were reached in the course of these Development Plans. The average annual growth rates in real GDP were 7.3% and 7.7% during the first and second Plan periods, respectively. In the 1970's, increased export earnings from oil reduced the effective contribution of agriculture from 70% of total exports in 1969 to less than 9% in 1983. Just before the launch of the 3rd. 5–year Plan (1979–83), petroleum prices declined and although the government had already devalued the Rupiah by 34% in 1978, another devaluation of around 28% was required in early 1983 (see Exchange Rate). A programme of structural adjustment was begun in 1983, with the further weakening of international oil prices. Up to 1981, in spite of having extensive natural resources, Indonesia had been classified as a low–income country, but in 1981 for the first time GNP per caput exceeded US$500 and the country was re–ranked as a middle income country by the World Bank. Real GNP grew steadily between 1980 and 1985 (GNP), as did debt outstanding and disbursed (Debt). The debt service ratio increased slightly between 1980 and 1984, followed by a more significant jump in 1985 (Debt Ratio). To help increase Indonesia's competitiveness in exports a 31% devaluation of the Rupiah took place in September 1986 (Exchange Rate). Immediately after this, inflation rose by 20%–40% but average inflation for 1986 was 8.8% which was around twice that for the previous year. Public expenditure and the volume of imports were reduced significantly.

Despite extensive loans from the World Bank, the IMF, and the Export Import Bank of Japan, domestic problems continued, especially in late 1985 following a decrease in the value of the US$. External borrowing had to be increased to maintain economic growth; over the period from 1980 to 1985, the debt service ratio more than doubled from 8% to 20%, with a significant jump in 1985.

Agriculture

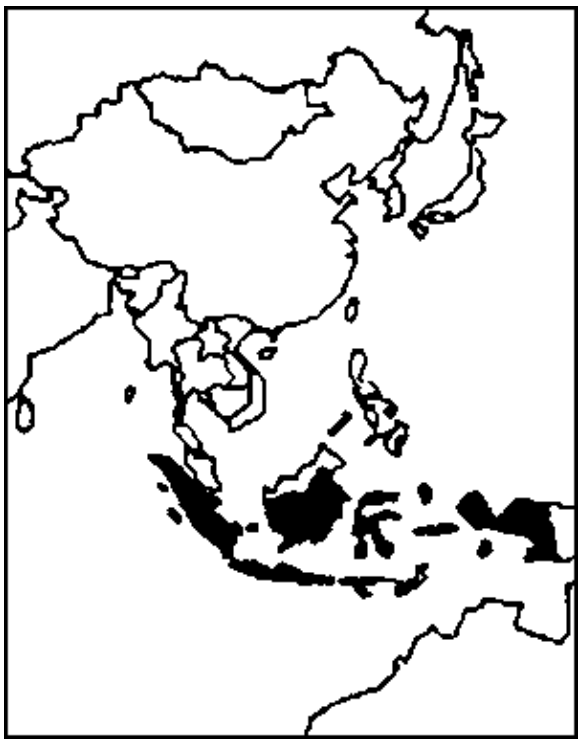
Although rice production increased substantially the aim of rice self−sufficiency was not reached in the first two 5−year Development Plans. During the 3rd. Plan food and total cereal production, including rice, increased in 1981 and sub−sequent years (Food Production Index & Cereals: Production). Total cereal availability increased in this period while per capita calorie availability remained steady, reflecting a diversification of the diet (Cereal Availability & Kcals per day). The 4th. 5−year Plan, launched in 1984, faced a deterioration of the country's terms of trade, forcing Indonesia to reduce imports and capital intensive activities. 1983's upward trend in food production continued into 1984. Production of rice increased considerably − in fact it more than doubled between 1969 and 1984. Indonesia became self−sufficient in rice in 1984/85, although this was achieved at a high economic cost given that the domestic price for rice, in the face of declining international market prices, was kept at the 1981 level by subsidizing both inputs and outputs and replacing a consumer subsidy with a producer subsidy.

Food and consumer prices showed a regular increase from 1980 to 1987 (FPI, CPI) − not quite doubling during that period. Relative food prices actually decreased from 1981 to late '85 (FPI/CPI) but began to rise more sharply in 1986. Except for a slight decrease in 1982, the food production index had progressively increased over the period 1981−86 (Food Production Index). Total cereal production and total cereal availability rose in parallel. 1987 saw a downturn in cereal production and availability after the worst drought in the country since 1982. Following an increase in the area planted, 1988's rice crop was slightly up on the previous year's.

Nutrition

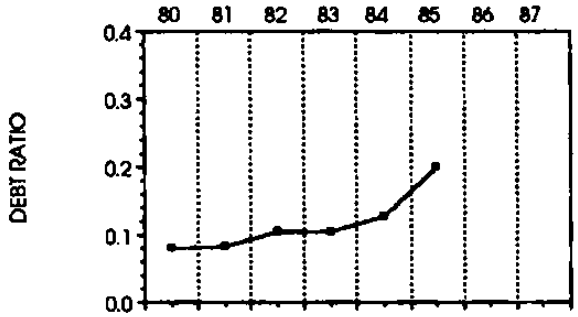
A comparison between the prevalence of underweight pre−school children (recorded as <70% Wt/Age) in 1978 and in 1986, shows little change when viewed nationally or for rural areas alone, but does show an improvement in urban areas (Underweight Children). Moreover, with just two exceptions (Sumatra and Maluku), the prevalences of underweight children across 9 provinces in 1986 as compared to those of 1978, decreased (Provincial Prevalence). The range of prevalence values (with the <70% cut−point) for 1986 is between 10% and 15% with the notable exceptions of Nusa Tenggara and Maluku (both close to 20%) and Bali which has the lowest prevalence at under 5%.

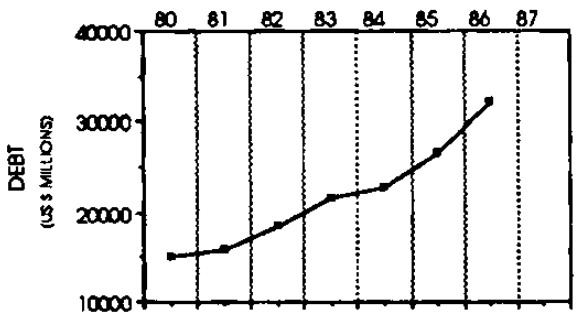
INDONESIA

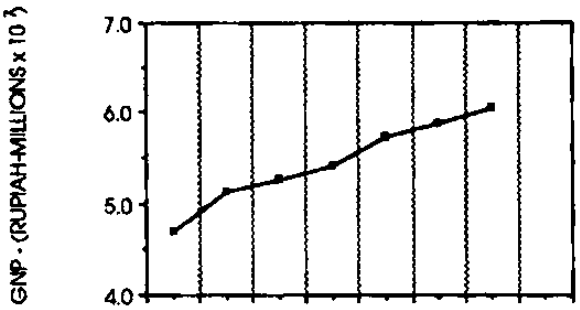


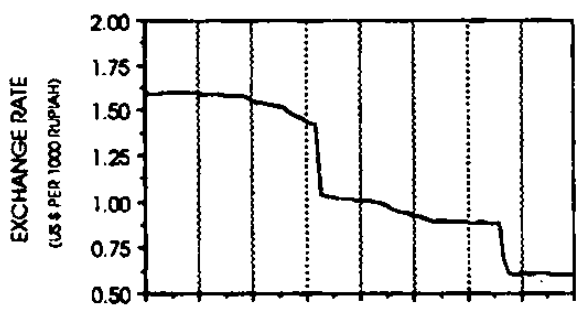
POPULATION: 172.2 M	IMR: 85
POPULATION DENSITY: 90 per sq. km.	U5MR: 120
POP. GROWTH RATE: 2.2% per annum	GNP (PER CAPITA): US$490
PERCENTAGE URBAN POP.: 27%	ESTIMATED PREVALENCE LEVEL UNDERWEIGHT CHILDREN: 25% – 35%

ECONOMIC INDICATORS

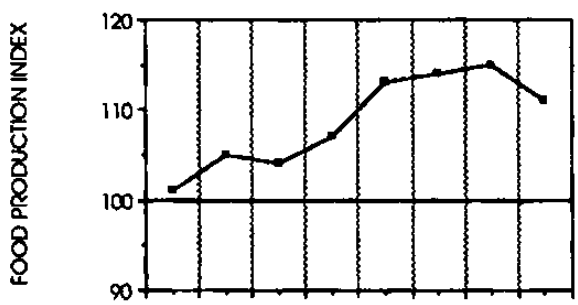


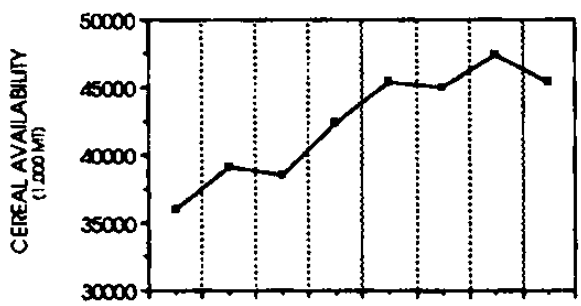


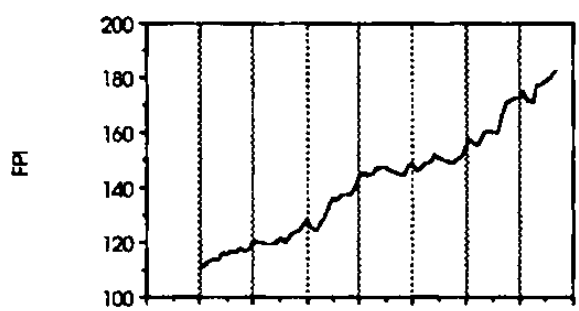


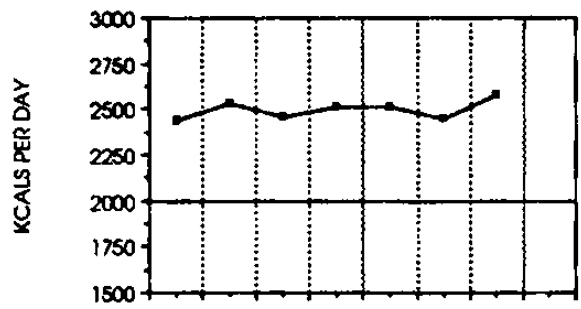


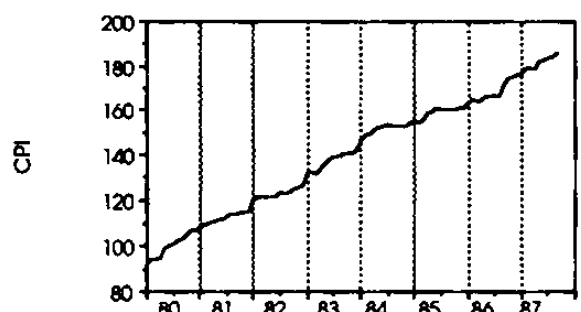
FOOD INDICATORS

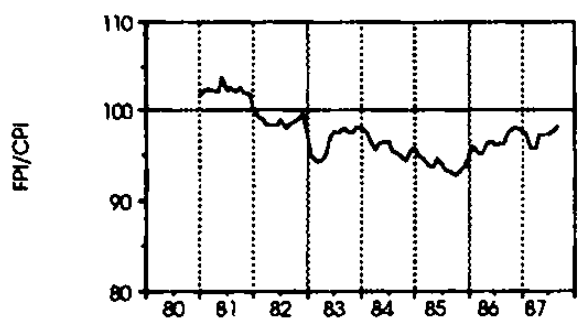






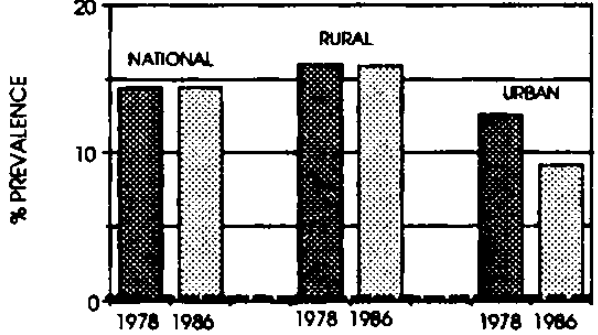




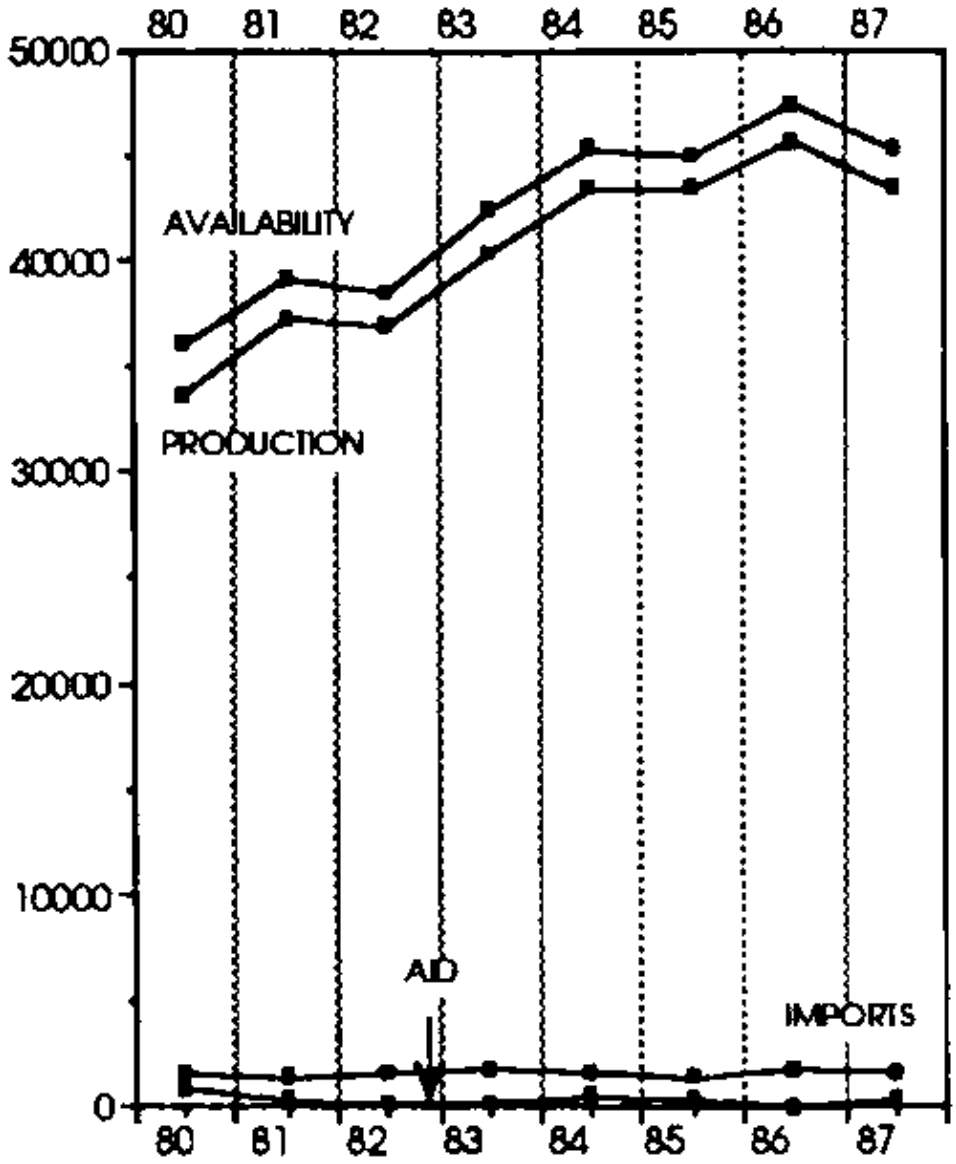


UNDERWEIGHT CHILDREN

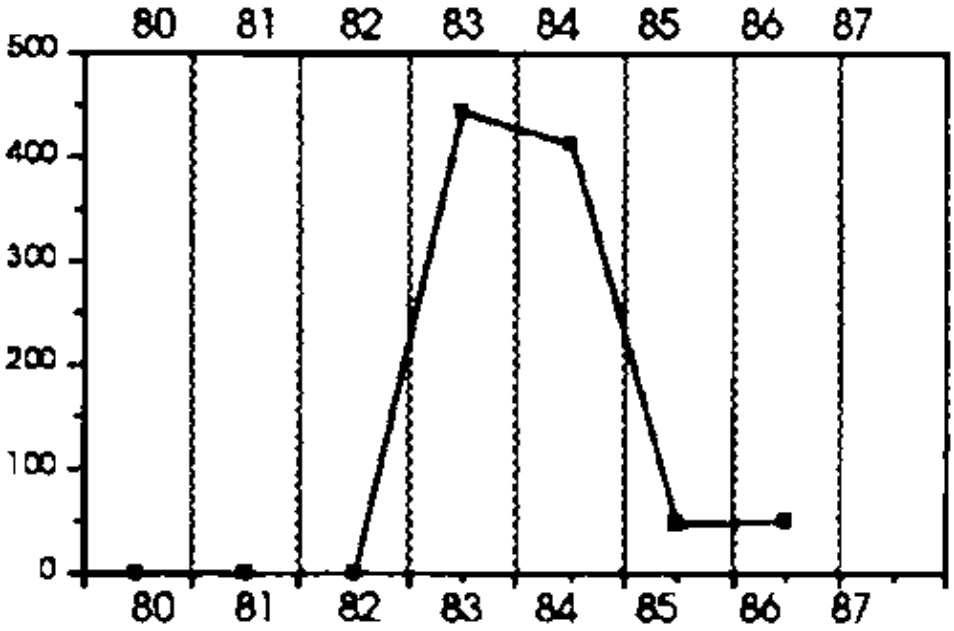
Prevalence of underweight (<70% Wt/Age) in children aged under 5 years: 1978 & 1986. By Urban/Rural area.



ADDITIONAL FOOD & ECONOMIC INDICATORS

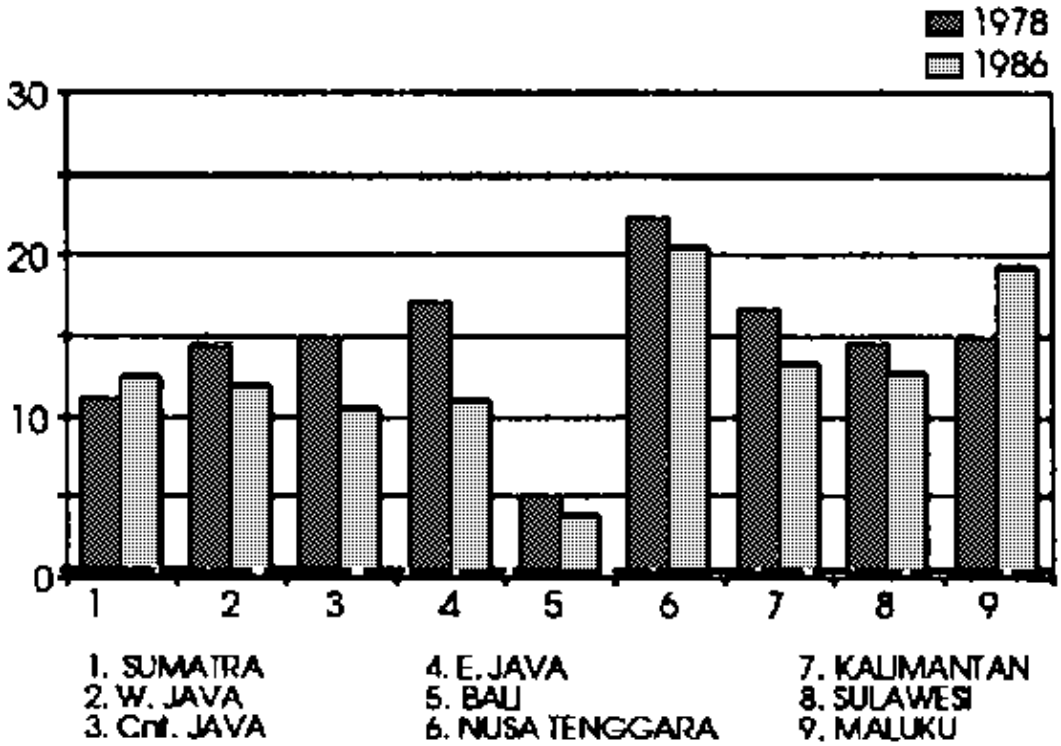


CEREALS (1,000 MT)



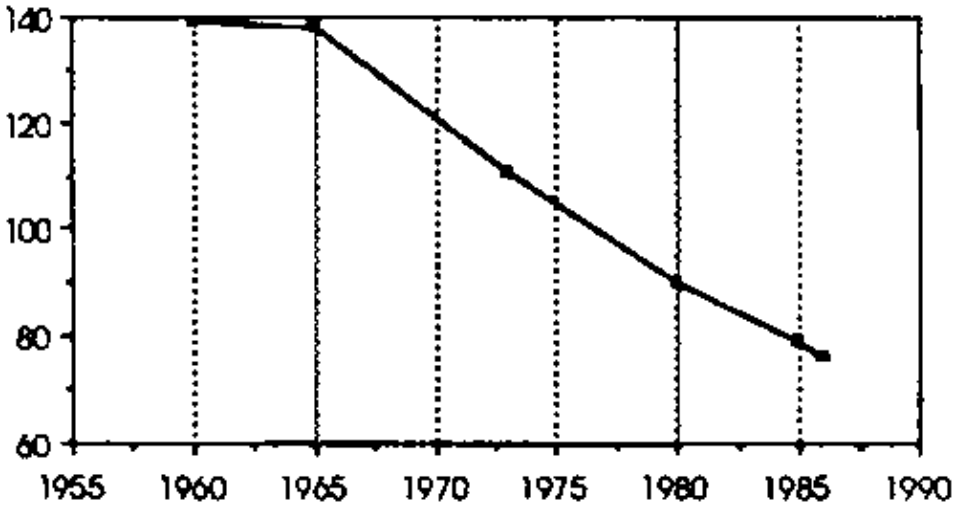
IMF CREDIT (US $ MILLIONS)

PROVINCIAL PREVALENCE



% PREVALENCE – Prevalence of underweight (<70% Wt/Age) in children aged under 5 years: 1978 & 1986. By province.

INFANT MORTALITY



INFANT MORTALITY RATE – Change in Infant Mortality Rate between 1960 and 1987

Philippines

The Philippines is an archipelago of 7,107 islands located 600 miles off the southeastern coast of the Asian mainland. It has a total land area of 300,000 sq. km. Its proximity to the equator gives it a tropical climate with pronounced wet and dry seasons. The islands are divided into three main groups: Luzon which is situated in to the north, Visayas, a scattered collection of small islands in the centre of the archipelago, and Mindanao, which has one major island surrounded by minor ones, in the south. The population was estimated to be 58 million for 1987, and growing at a rate of 2.5% per annum. The average population density is high at around 190 persons per sq. km., with a particularly high concentration in the National Capital Region (NCR) of 1,100 per sq. km., in contrast to the least densely populated region of Cagayan Valley at 69 per sq. km. While the NCR is 100% urban, nationally the rural population is approximately 60%.

The Economy

The Philippines experienced accelerated growth in the 1970's compared with the previous decade. A growth trend which, like most developing economies, slowed down in the early eighties as a result of the world economic recession. It is anticipated that the effects of that recession will not disappear in the immediate future; and in fact the situation deteriorated to such an extent that in 1984/85 the country experienced the worst economic crisis since the second World War. This was triggered by a second oil crisis and resulted in increases in export prices – making the Philippines less competitive – which was compounded by a decline in the volume of goods exported due to a lower worldwide demand. The Philippines was now faced with a foreign exchange shortage and a very high external debt (see Debt). To further exacerbate the affects of the recession, external funds and investments from donors were less readily available.

At the domestic level, 1983 saw a cutback in imports of raw material which adversely affected home production. GNP fell dramatically in 1984 (GNP), unemployment rose subsequently, as did the cost of living (CPI). Unemployment rose from 5.4% in 1983 to 7.3% in 1984; under–employment remained high. At this time, the purchasing power of the Peso declined by 30% and consumer prices increased by 50% and continued upwards (CPI). Food prices grew at approximately the same rate as the general consumer prices (FPI/CPI). There were two consecutive annual decreases in GNP –1984 and again in 1985 (GNP). Government expenditure was drastically reduced between 1982 and '84, particularly in the economic and social services. Industry was severely affected, but the agricultural sector showed positive growth in 1985 and '86. The Philippine government reached agreement with the IMF in December 1984 for the period January '85 to June '86 which increased its stand–by credit substantially (IMF). The exchange rate was allowed to float in 1984 after successive depreciations since late 1982. The rate rose at the end of '84 before stabilizing (Exchange Rate). In addition, the government instituted its own reform measures in 1985/'86, and as a result 1987 saw a measure of economic growth. If this trend continues, the Philippines is expected to show a marked recovery by 1988.

Agriculture

While employing 50% of the labour force, the agricultural sector accounts for just under 30% of GDP. Its importance to export earnings has declined during the last two decades, presently its contribution is about 16% of the value of exports. This sector showed positive growth in 1985 to '86 following three poor years in 1983 to '85. Food production indices reflect this with a decline to 93.5% in 1983 from 96.1% in '82 and a further decline to 94.1% in 1985 (see Food Production Index). Yet, cereal production and availability actually rose steadily subsequent to 1982, until 1987 (Cereals: Production & Availability). Total food available for consumption (measured as kcals) has changed little over the period (Kcals per day).

Nutrition

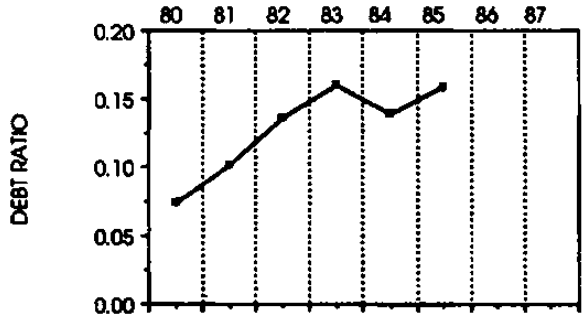
Following 1980, a decline in IMR continued steadily (see Infant Mortality). The prevalence of underweight children, which showed a drop from over 20% in 1978 to 17% in 1982, then rose again in 1984 and '85 to the 1978 levels (Underweight Children). However, the data show a possible improvement after 1985 (although the data for 1984 onwards are not strictly comparable with the previous two points, as they are derived from the national Nutritional Surveillance Programme. Those for 1978 & '82 are based on national surveys. Thus the comparison should be treated as indicative only).

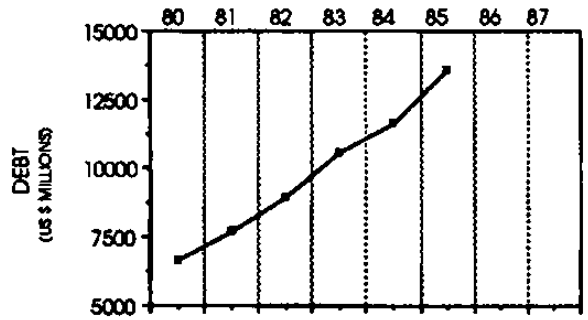
Regional prevalences are also shown, with Regions 1 through 12 having a general North to South gradient (see Regional Prevalence). The rates confirm both temporal and inter–regional differences of some magnitude. Region 5 experienced a prevalence in excess of 30% in 1984, declining to around 25% in 1986; by contrast Region 6's levels rose between 1984 and '86. The National Capital Region (NCR) has a consistently high prevalence which is second only to that of Region 5, although these are not contiguous. Broadly speaking, prevalence figures for 1984 exceed those for 1986 for Regions 1–5, and this is reversed for Regions 6–12 and NCR, suggesting a crude regional gradient.

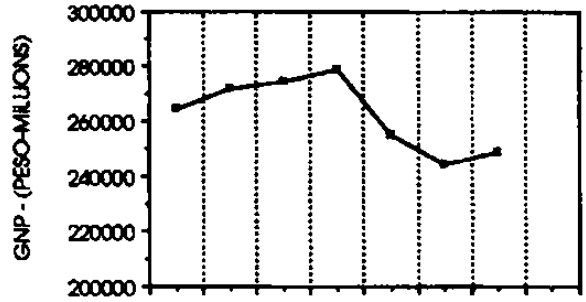
PHILIPPINES

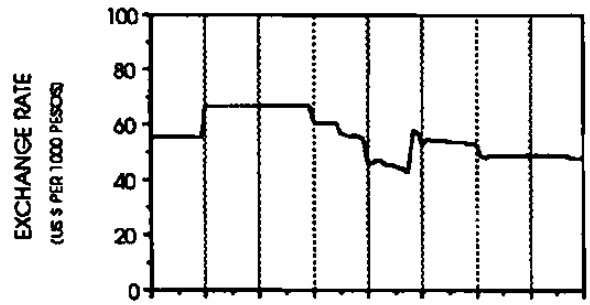
POPULATION: 58 M	IMR: 46
POPULATION DENSITY: 193 per sq. km.	U5MR: 75
POP. GROWTH RATE: 2.5% per annum	GNP (PER CAPITA): US$560
PERCENTAGE URBAN POP.: 41%	ESTIMATED PREVALENCE LEVEL UNDERWEIGHT CHILDREN: 30% – 40%

ECONOMIC INDICATORS

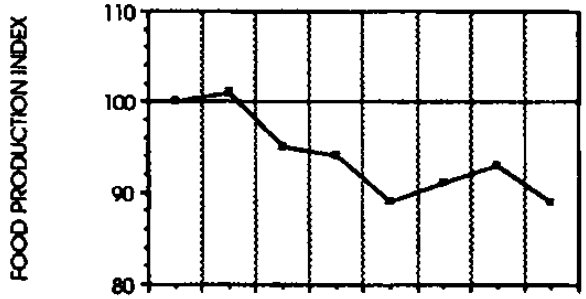


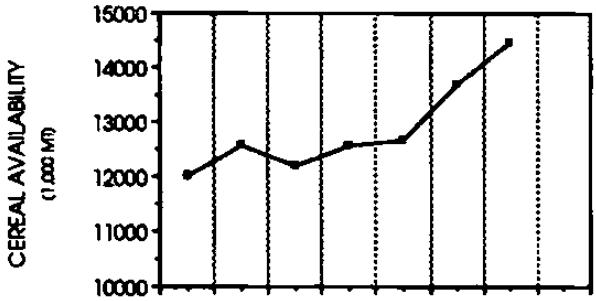


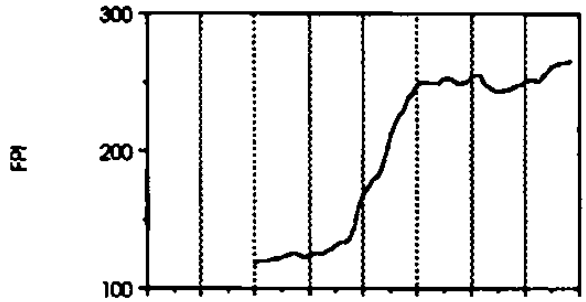


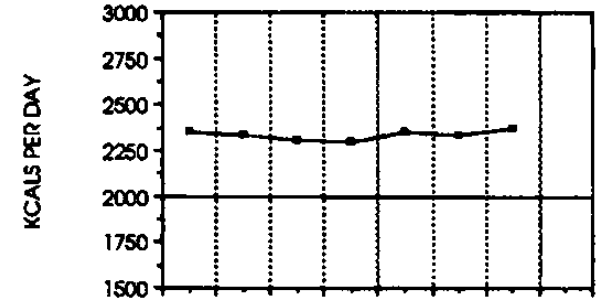


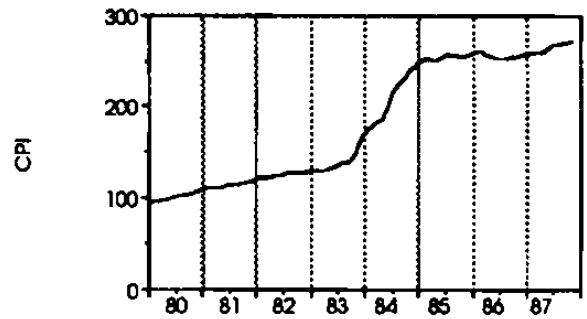
FOOD INDICATORS

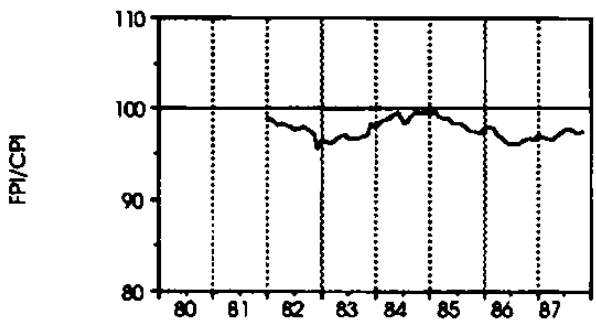






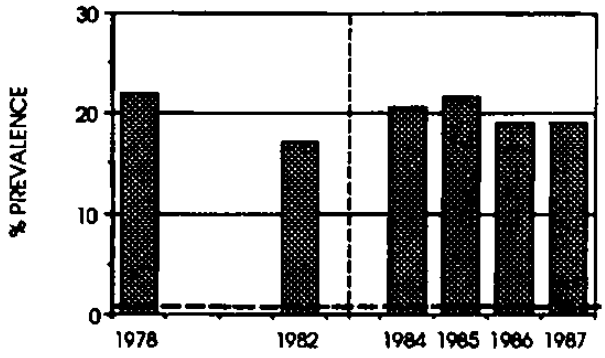




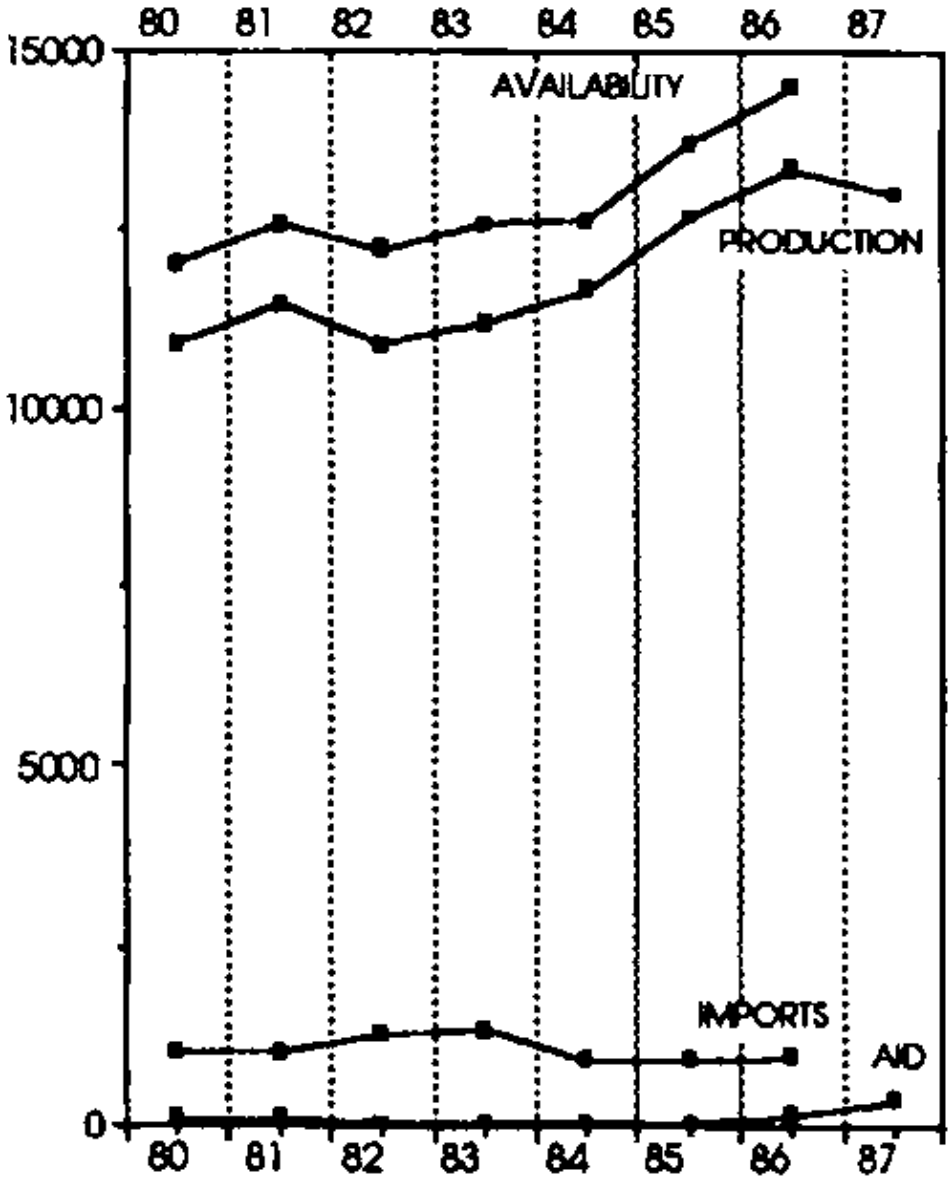


TRENDS IN UNDERWEIGHT CHILDREN

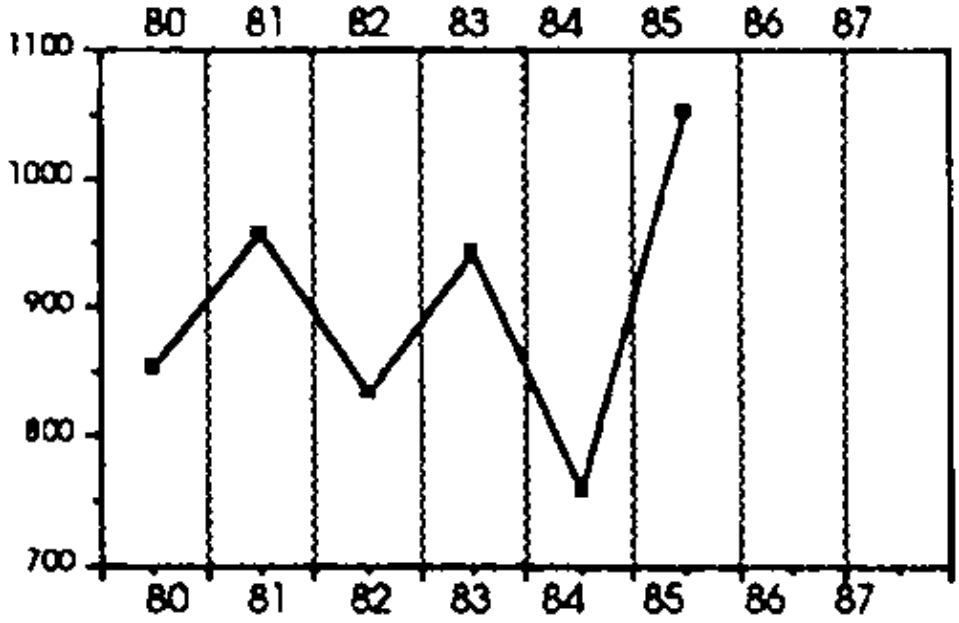
Prevalence of underweight (<75% Wt/Age) in children aged under 6 years. 1978 & '82 (Survey) . 1984 -87 (National Weighing Programme).



ADDITIONAL FOOD & ECONOMIC INDICATORS

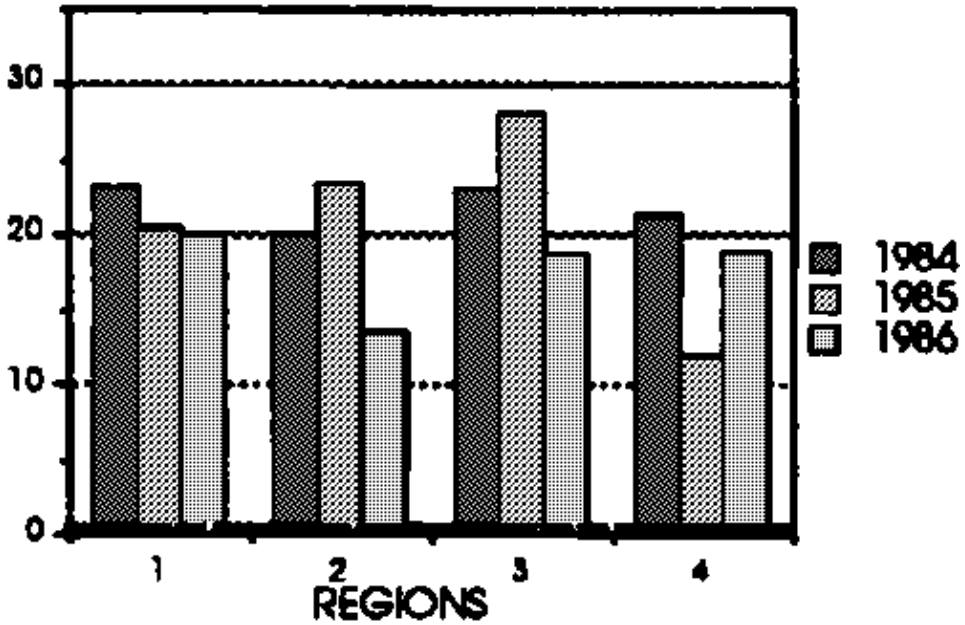


CEREALS (1,000 MT)

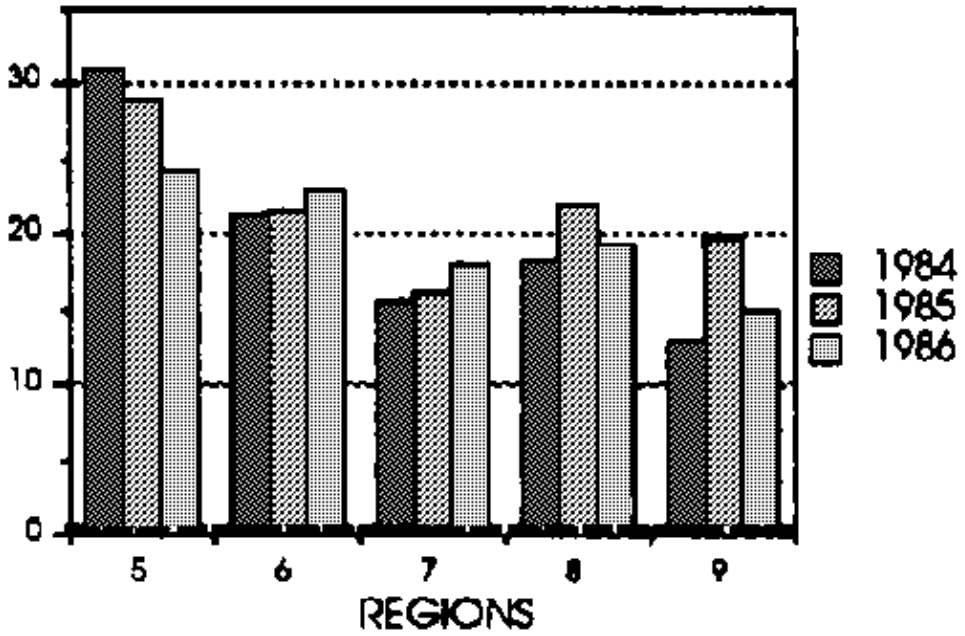


IMF CREDIT (US $ MILLIONS)

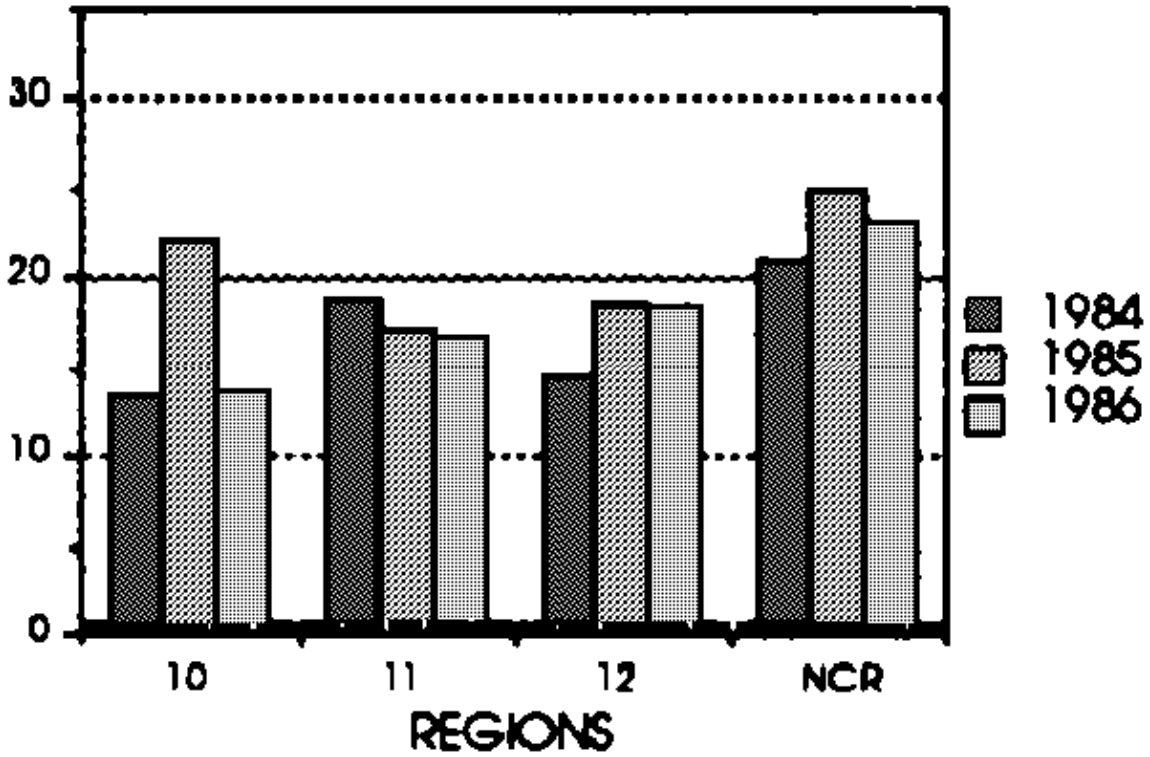
TRENDS IN REGIONAL PREVALENCE



% PREVALENCE – Prevalence of underweight (<75% Wt/Age) in children aged under 6 years: 1984–86. By region. National Weighing Programme.

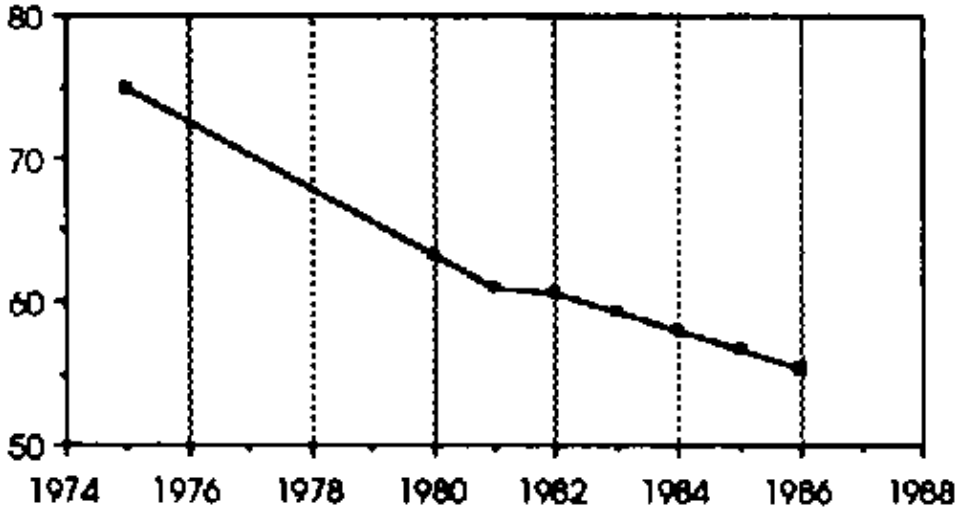


% PREVALENCE – Prevalence of underweight (<75% Wt/Age) in children aged under 6 years: 1984–86. By region. National Weighing Programme.

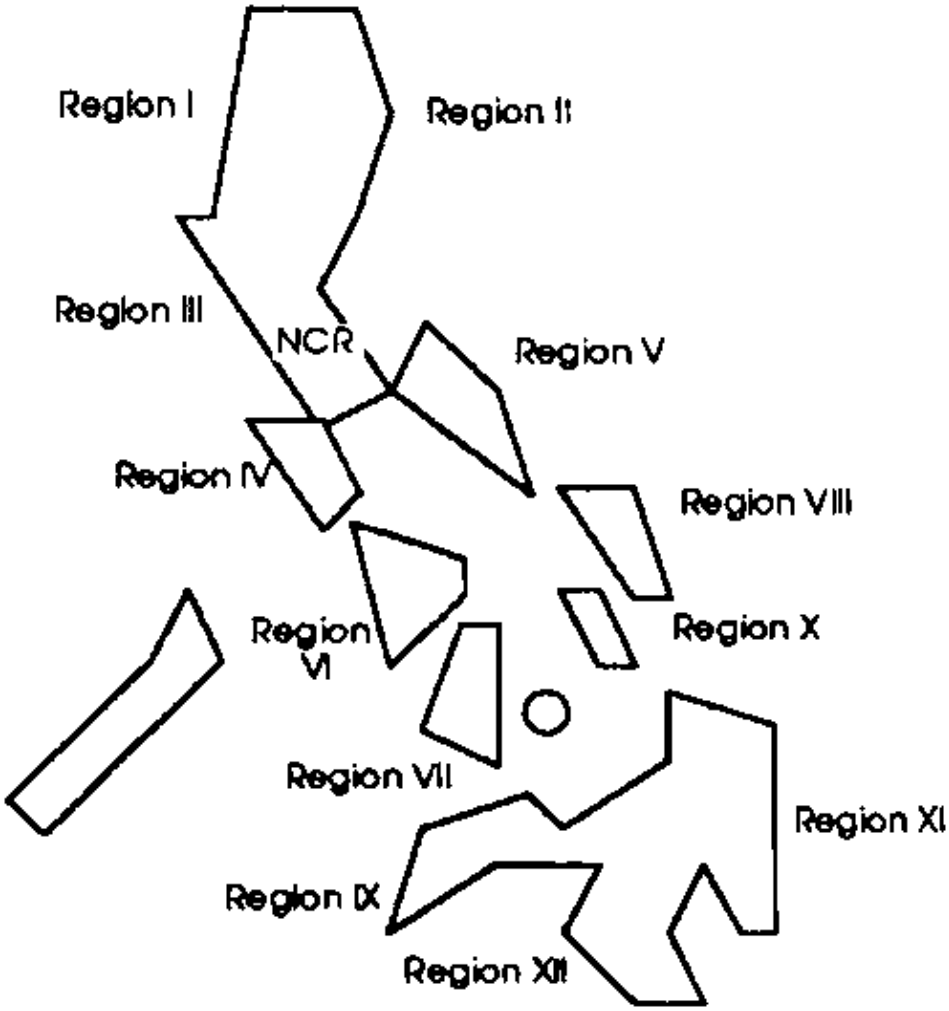


% PREVALENCE – Prevalence of underweight (<75% Wt/Age) in children aged under 6 years: 1984–86. By region. National Weighing Programme.

INFANT MORTALITY



INFANT MORTALITY RATE – Change in Infant Mortality Rate between 1975 and 1986



Sri Lanka

Since Sri Lanka gained independence in 1948, successive government policies have emphasized social development, for example in the areas of literacy, health services, and access to food. Results of such policies are to be seen, for instance, in the notably low infant mortality rate (estimated at 34 per 1,000 live births for 1987). However, in recent years political and economic factors have hindered continued progress.

During the period 1970–77, a high population growth rate together with an average annual GNP growth rate of only 2.9%, imposed a continuous strain on fiscal and budgetary management; a serious consequence was

rising inflation and unemployment rates. In 1977, several economic reforms were planned in order to achieve added growth and development of the national economy. Food subsidies (particularly for rice) were reduced and price control policies reviewed. Between 1977 and 1986, these strategies led to a doubling of investment in real terms and to a lowering of unemployment from 25% to 15%. However, the resulting inflation raised prices for foods and fuel, which had an inevitable impact on vulnerable population groups. In 1978, food stamps were made available to the low income groups which allowed minimum consumption levels to be maintained, and replacing the general rice subsidy. But the fixed value of the food stamps meant a restricted ability to obtain some of the basic foods in the face of increases in prices of these commodities. Prices of both foods and other items increased steadily during this decade (see CPI, FPI), approximately doubling by 1987. Food prices have risen at the same rate as general commodities (FPI/CPI). Substantial cuts, relative to GDP, in public and social service expenditure in the early eighties, reduced annual inflation rates from 25% in 1980 to less than 15% during 1981–84.

Despite the emphasis placed on the manufacturing sector, the economy remains predominantly agricultural. The annual rate of increase in the productive capacity of domestic agriculture was about 5% between 1979 and 1984. The output of paddy rice alone, which is the principal crop – covering one third of all cultivated land – increased by 55% overall between 1977 and 1986. However, 1981 and 1982 witnessed a decrease in total food production (Food Production Index), although cereal production rose in 1981 (Cereals: Production), as did imported cereals and cereals received as food aid (Cereals: Availability, Imports & Aid). In 1982, total cereal availability decreased slightly with decreases in production. Accordingly, dietary energy supply (as kcals per caput per day) failed to increase in 1981 and 1982 (Kcals per day). This trend was reversed in 1983 when there was an increase in total food and cereal production. There was a corresponding rise in cereal availability and food availability (Cereal Availability & Kcals per day).

The net inflow of private foreign investment funds had increased substantially since 1978, but the Sri Lankan economy as a whole suffered a major set–back as a result of ethnic disturbances which escalated after 1983.

The output of paddy rice, which had dropped in 1984 due to floods, increased in 1985 with a record harvest. But the 1986 crop was adversely affected by both drought and civil disturbances. Following on a reduced 1987 crop, due to another poor harvest and the continuing civil strife, large imports were required to replenish stocks. FAO reported persisting shortages in some areas during 1988 although the main rice crop was about average.

The export potential of the agricultural sector, with three major crops namely tea, rubber and coconut, has not been fully realized. For example, in 1985/'86, the average annual output of tea was only 4.9% above that of 1976–77. After a temporary recovery of tea prices and a resulting improvement in export earnings in 1984, 1985 and '86 saw tea prices declining by 44%. Thus in 1986 Sri Lanka's export earnings decreased by 6%, mainly due to a drop in world commodity prices. At the same time, the ethnic disturbances were estimated to have cost the government around 7% of GDP in 1986.

The rupee was allowed to depreciate by about one third in relation to the US dollar between January 1983 and December 1986 (Exchange Rate) in order to increase Sri Lankan export competitiveness in international markets. Prices in 1987 for the country's traditional tea, rubber and coconut exports, reached their lowest levels since the second World War. This, in addition to the large defence expenditure and drought, placed Sri Lanka in a position that it required urgent external assistance. The country has experienced a chronic balance of payment deficit since at least the late 1950's up to the present time. An ever increasing foreign debt trend during 1980–'86 (Debt) coupled with the rise in the debt service costs (Debt Ratio), have been most important problems facing the economy.

Nutrition

The available data relate to two surveys conducted in 1980/'82 and 1986. As different age groups were included in both studies, comparisons must be judged with caution. However, such evidence as does exist is consistent with an improvement in the nutritional status of preschool children. This is apparent for the Estate group for prevalence of wasting and more strikingly for Rural and Urban groups with regard to prevalence of stunting (Wasted & Stunted Children).

Marked differences in the prevalence of stunting are apparent between urban and rural communities for both surveys, somewhat less evident in relation to wasting, except for the Estate sector. Nevertheless, the data do indicate that, despite difficulties, nutrition probably continued to improve in the period 1980–86.

POPULATION: 16.6 M

POPULATION DENSITY: 251 per sq. km.

POP. GROWTH RATE: 1.5% per annum

PERCENTAGE URBAN POP.: 21%

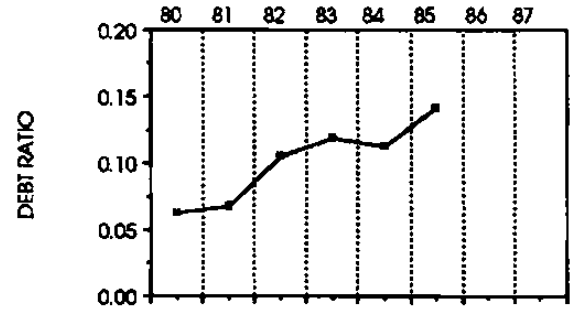
IMR: 34

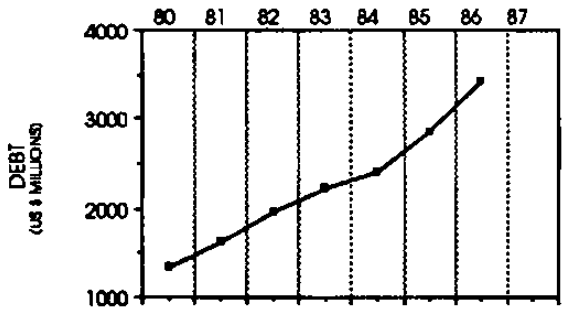
U5MR: 45

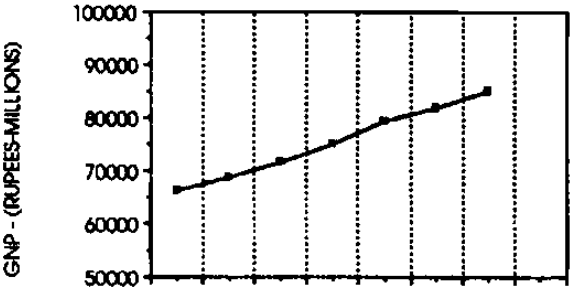
GNP (PER CAPITA): US$400

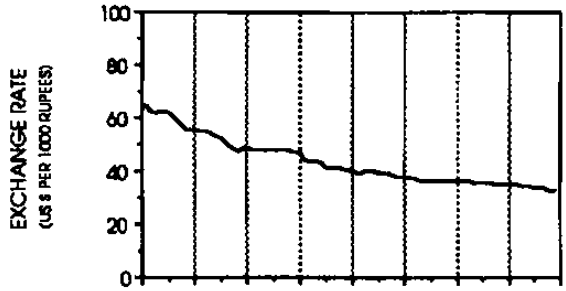
ESTIMATED PREVALENCE LEVEL UNDERWEIGHT CHILDREN: 40% – 50%

ECONOMIC INDICATORS

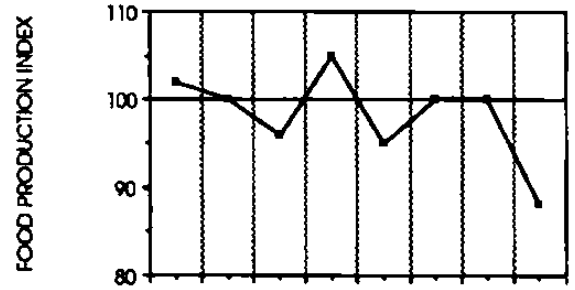


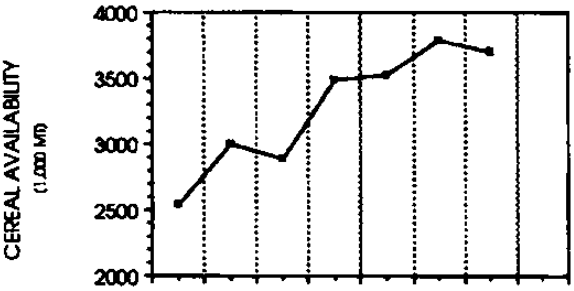


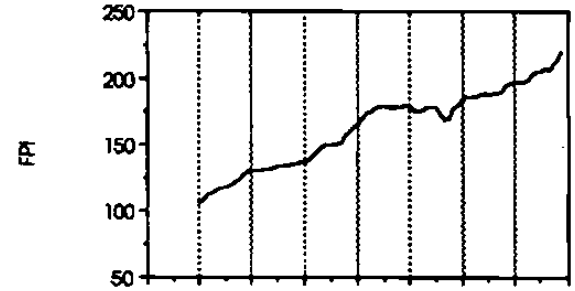


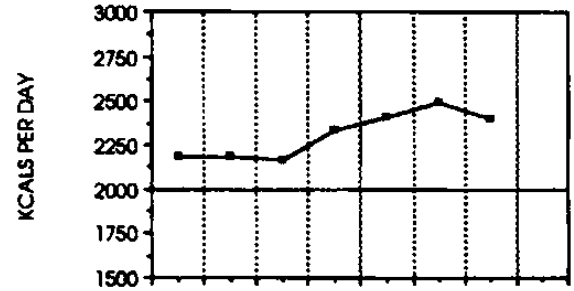


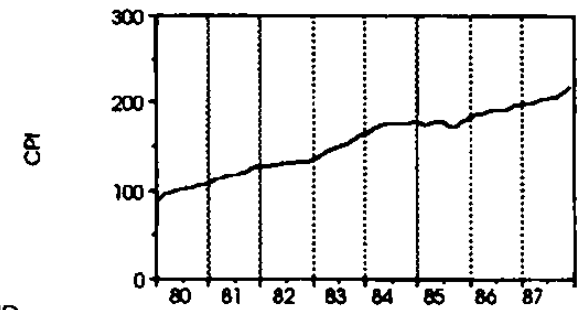
FOOD INDICATORS

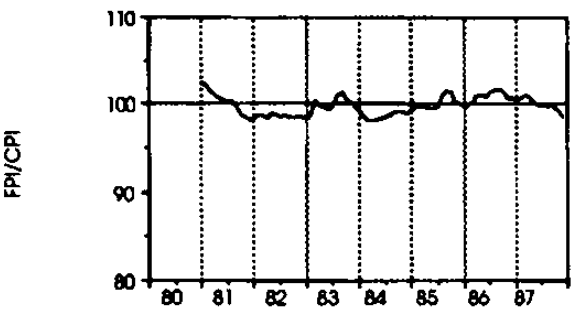




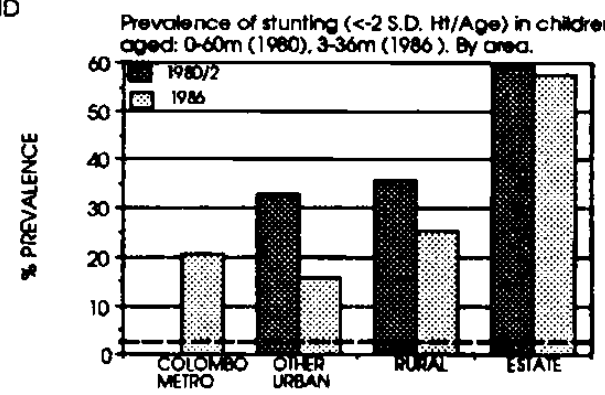


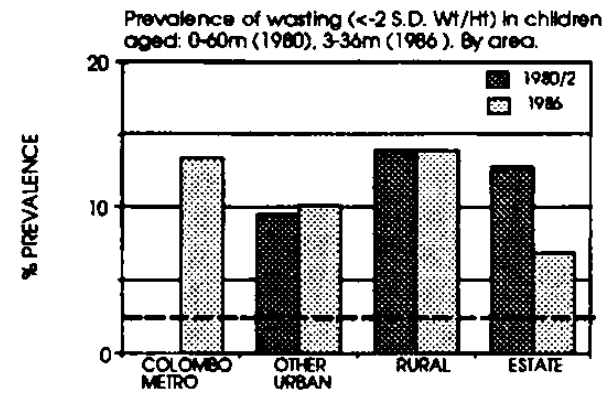




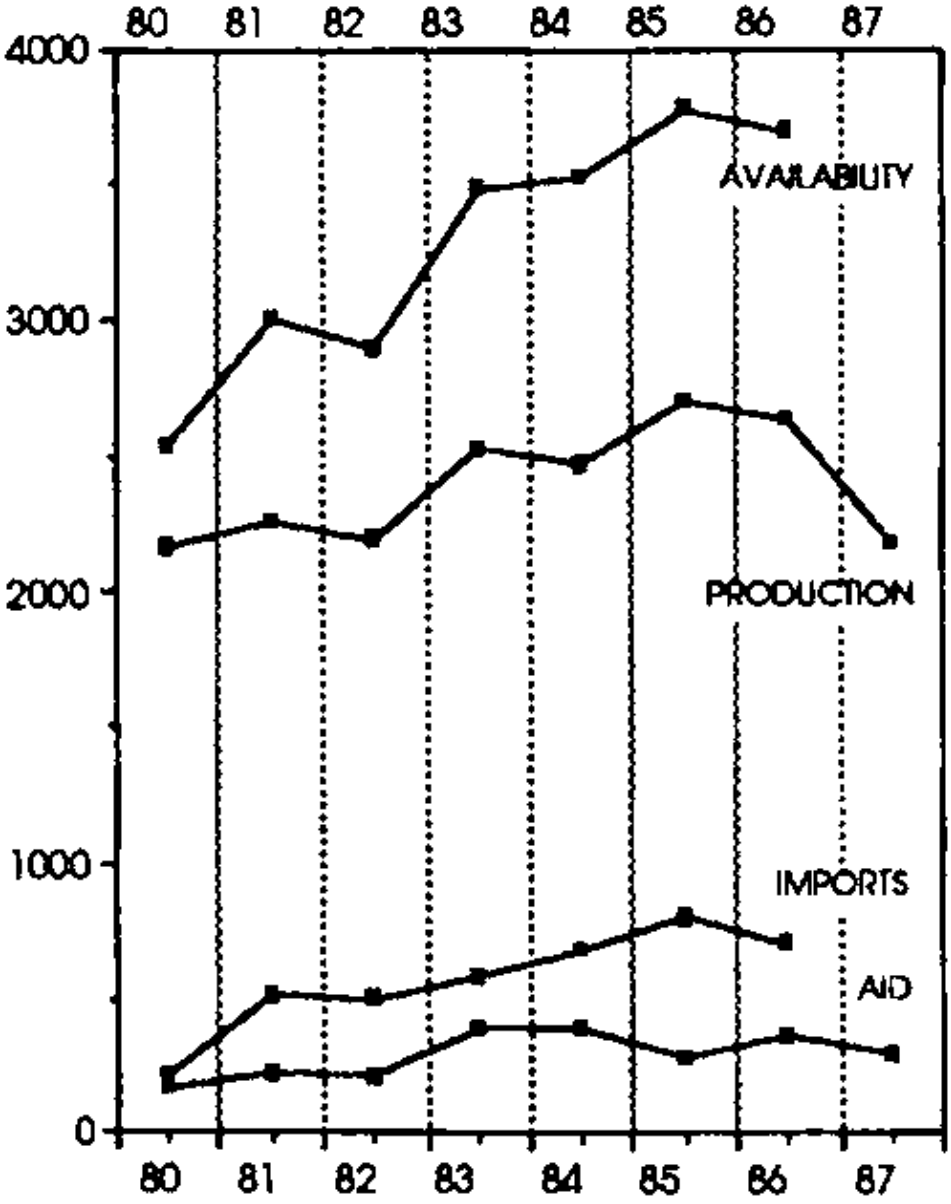


WASTED AND STUNTED CHILDREN

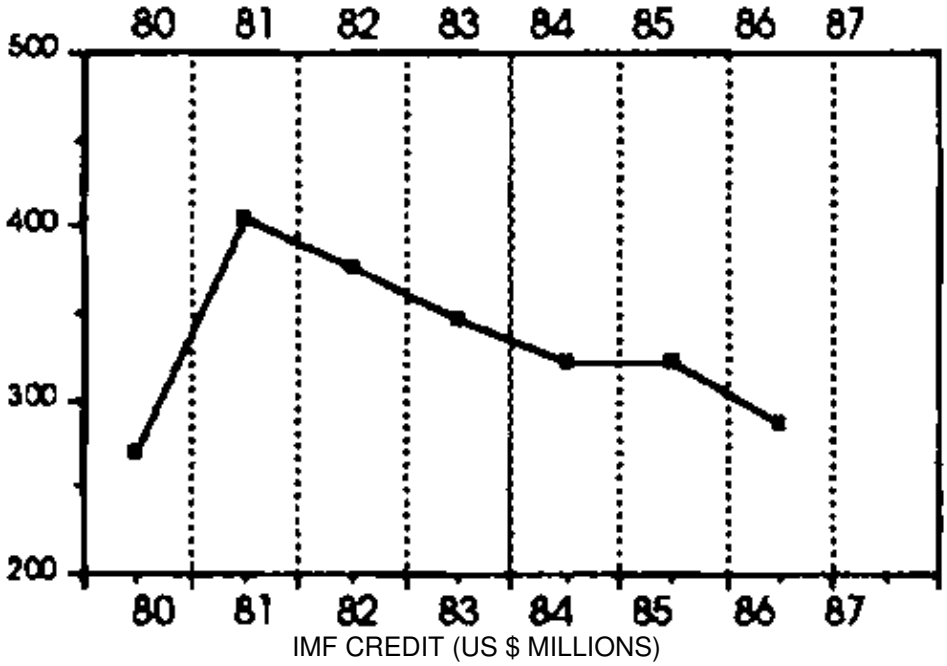




GRAPHICS



CEREALS (1,000 MT)



IMF CREDIT (US $ MILLIONS)

Thailand

Thailand (formerly Siam), a country of 514,000 square kilometres, is situated on the Indochina peninsula of Southeast Asia between 5° and 21° north latitude. It is one of the tropical countries of Asia with the majority of the population engaging in agriculture. The population was estimated at 53.3 million in 1987 and growing at a rate of 2% per annum; population density is 104 persons per sq. km.

Concern with national family planning, communicable disease control and environmental sanitation featured strongly in national development plans since 1972. The expectation of life at birth has risen steadily between the mid seventies and the present: from 57.7 to 62.2 years for males, and from 61.6 to 66.2 years for females, respectively. The Infant Mortality Rate has dropped from 56 per 1000 live–births (1974/75) to 41 per 1000 live births (1985/86). The incidence of low birth weight has also decreased: 11.5% (1978) to 7.6% (1986).

Agriculture

Agriculture is the principal source of employment in the country, accounting for two–thirds of the labour force. This sector's contribution to GDP has been declining steadily since the sixties when it represented around 40% of GDP. By the eighties the percentage was down to 16%. In part this has been as a result of a sharp reduction in the value of agricultural products. Potential for expansion of this sector is limited. Increases in production have occurred as a result of more land being taken into cultivation, rather than improvement in productivity. With unreliable rainfall and limited development of irrigated lands, intensive production –especially of the main food crop, rice – has been hampered. Thailand now faces serious problems of land shortage and soil erosion.

Production of rice has shown a long–term positive trend. It is however subject to annual fluctuations which reflect rainfall patterns and area planted. In addition to rice being the main domestic staple, Thailand is also the world's largest exporter of rice, with foreign sales averaging in excess of 3 million tons per annum since the early eighties.

During 1980 flooding severely damaged crops in over half the country's provinces. Nevertheless, the aggregated output was up by 12% on '79's drought–reduced crop. Total food production was above average (and remained so until 1986, see Food Production Index). Rice production in 1981 was again up and total cereal production (including maize) and cereal availability rose (Cereals: Production & Cereal Availability). Erratic rainfall and flood damage ensured that cereal production fell by 6% in 1982, at a time when imports and aid were comparatively low (Cereals: Imports & Aid). Overall cereal yield for 1983 was up on the low of 1982 and exceeded the record figure for 1981. Flooding in 1983 was responsible for some crop damage. However, the main rice harvest (in February, 1984) was not unduly affected. Cereal production in '84 increased by 7% as compared to the previous year's and cereal availability continued to rise. In 1985, inspite of drought followed by excessive rain, the rice crop was again not too severely affected and for the 3rd. successive year total production was up.

Reduced plantings in consequence of a drought in mid–1986 affected the production of both rice and maize. Both crops were significantly down on the previous year's high. Imports remained stable but aid was at a record high (Cereals: Imports & Aid). Following lowered prices on international markets for rice, the area planted during 1987 was reduced significantly. As a consequence, production was back to 1980's level and down by 12% on 1986. 1988's weather conditions were generally favourable and the output for the rice crop was expected to be significantly higher than 1987's.

The Economy

Thailand's gross domestic product increased by an average of 6.6% (at constant prices) between 1961 and 1980. Growth slowed during the early eighties to around 5% per year. In 1985, GDP was rising at an average of 3.2% per annum. 1986 saw a sharp recovery following the reduction in petroleum prices and a more competitive export trade. During this period there was a marked deterioration in the balance of payments deficit and in foreign reserves. As GDP recovered in 1986 (to an annual growth rate of 4%) so too did the balance of payments deficit which moved into a slight surplus in the current account.

The 5th. National Plan (1982–'86) recognized the need to stimulate the private sector with particular emphasis on the development of a heavy industry. The central theme of the current 6th. Plan (1987–'91) is to tackle the problem of rural stagnation and poverty.

In order to address the serious balance of payments deficit during the early part of this decade, the Thai Government introduced a number of measures. The severing of the formal link between the Baht and the US$ occurred in 1981. There followed a devaluation of the Baht by 8% in 1981 and by a further 14.8% in 1984 (Exchange Rate). The intention was to reduce imports and make exports more competitive. However, these measures were inadequate to fully address the trade deficit. Export earnings did improve in 1986, in part as a result of a currency depreciation with respect to the Yen and the major European currencies.

The total foreign debt moved from just over $5 billion in 1981 to $16 billion in 1986, partly as a result of borrowing to finance the trade deficit. The debt service ratio rose dramatically during the same period (Debt Ratio) as did debt outstanding and disbursed (Debt). The consumer price index rose by a modest 40 points between 1980 and the end of 1987 (CPI). Food prices also rose moderately overall, and indeed fell during 1984 (FPI). Relative to general consumer prices, food prices actually declined particularly after 1984 (FPI/CPI).

Nutrition

The country's nutritional surveillance programme has carried out studies at village level since 1982. During this period coverage has increased substantially from just over 30 thousand villages in 1982 to around 56 thousand villages in 1988. The prevalence of first degree malnutrition (Gomez classification, using a national Thai weight−for−age standard) has dropped from 35.6% in 1982 to 20.9% in 1987 (Underweight Children) in pre−school children. In fact, the data show a steady improvement throughout the period.

Second degree and third degree malnutrition combined were 15.1% in 1982, also down to 2.46% in 1987 (Additional Trends in Underweight).

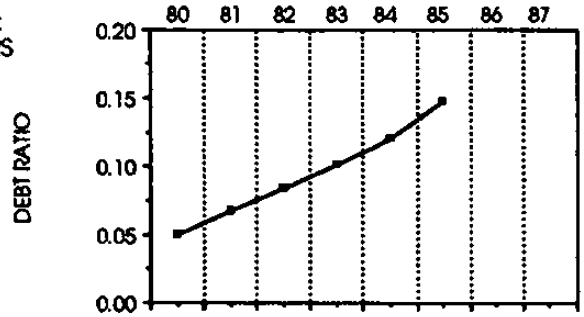
Considerable regional variation is seen in underweight prevalences. A 1986 survey found that 6% of young children nationally had weights less than 75% of the Thai reference value for their age (i.e. second and third degree malnutrition). However, the prevalences in the north−east, north, south and centre were 8%, 6%, 4% and 2%, respectively. At present most of the existing irrigation schemes and extensions to such schemes are in the central part of the country. This contributes to an explanation of higher rural incomes, better household food security and a lower prevalence of underweight children in this area.

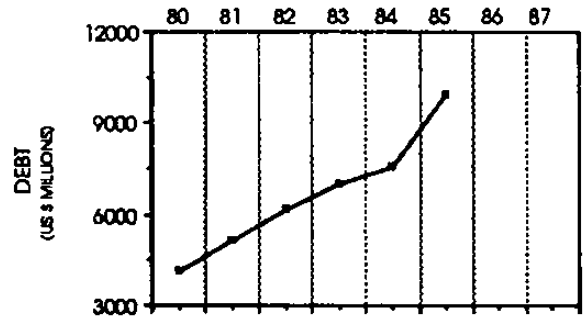
Some degree of seasonality is suggested in the rates of undernutrition from the data from 2 provinces covering the last quarter in 1986 to the first quarter in 1988 (Quarterly Prevalences). However, the detection of seasonal differences would require additional years' data to confirm this impression.

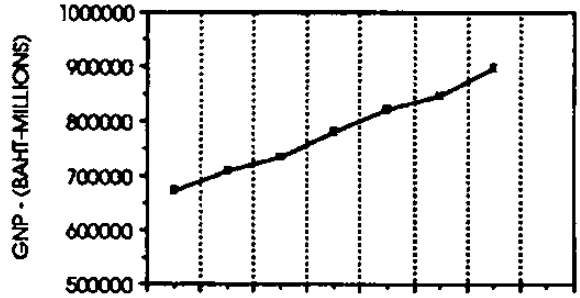
THAILAND

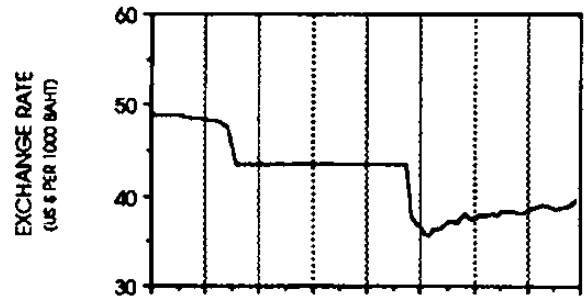
POPULATION: 53.3 M	IMR: 40
POPULATION DENSITY: 104 per sq. km.	U5MR: 51
POP. GROWTH RATE: 2% per annum	GNP (PER CAPITA): US$810
PERCENTAGE URBAN POP.: 21%	ESTIMATED PREVALENCE LEVEL UNDERWEIGHT CHILDREN: 30% – 40%

ECONOMIC INDICATORS

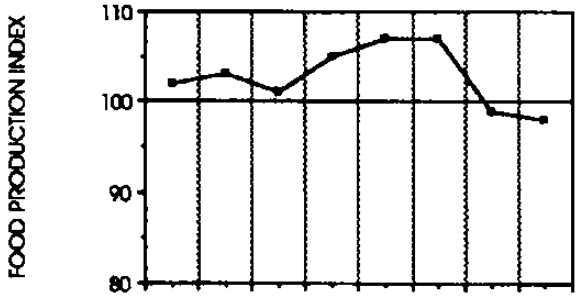


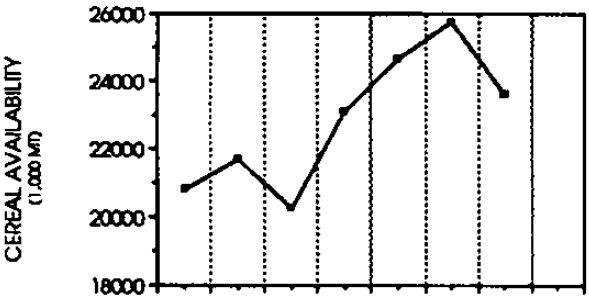


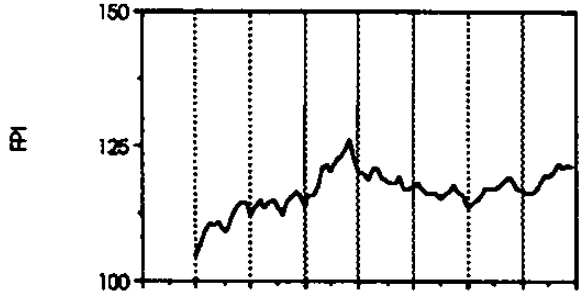


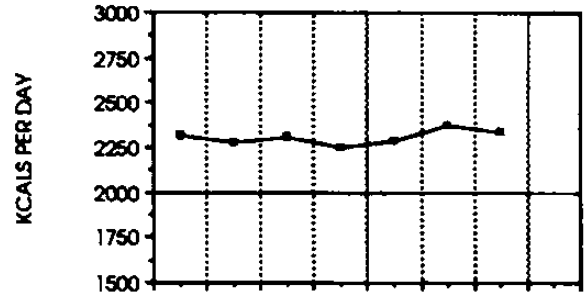


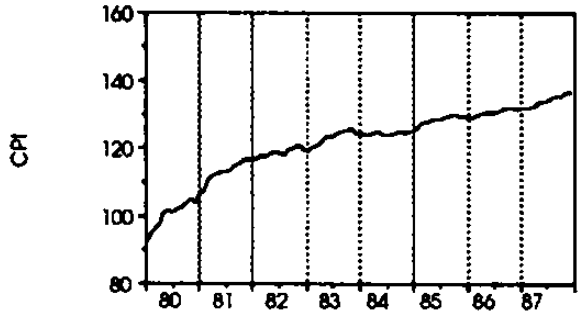
FOOD INDICATORS

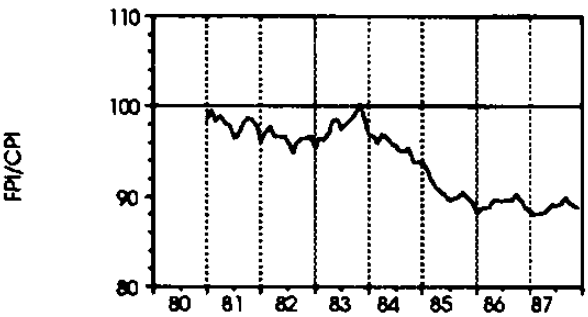






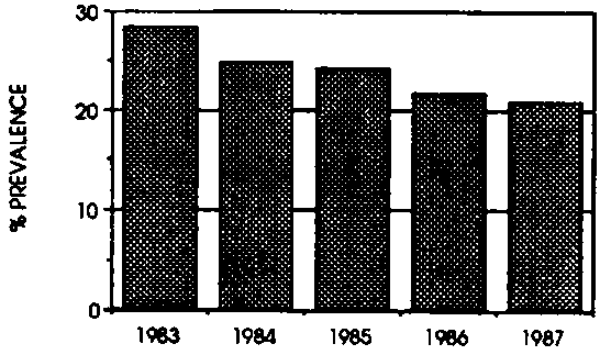




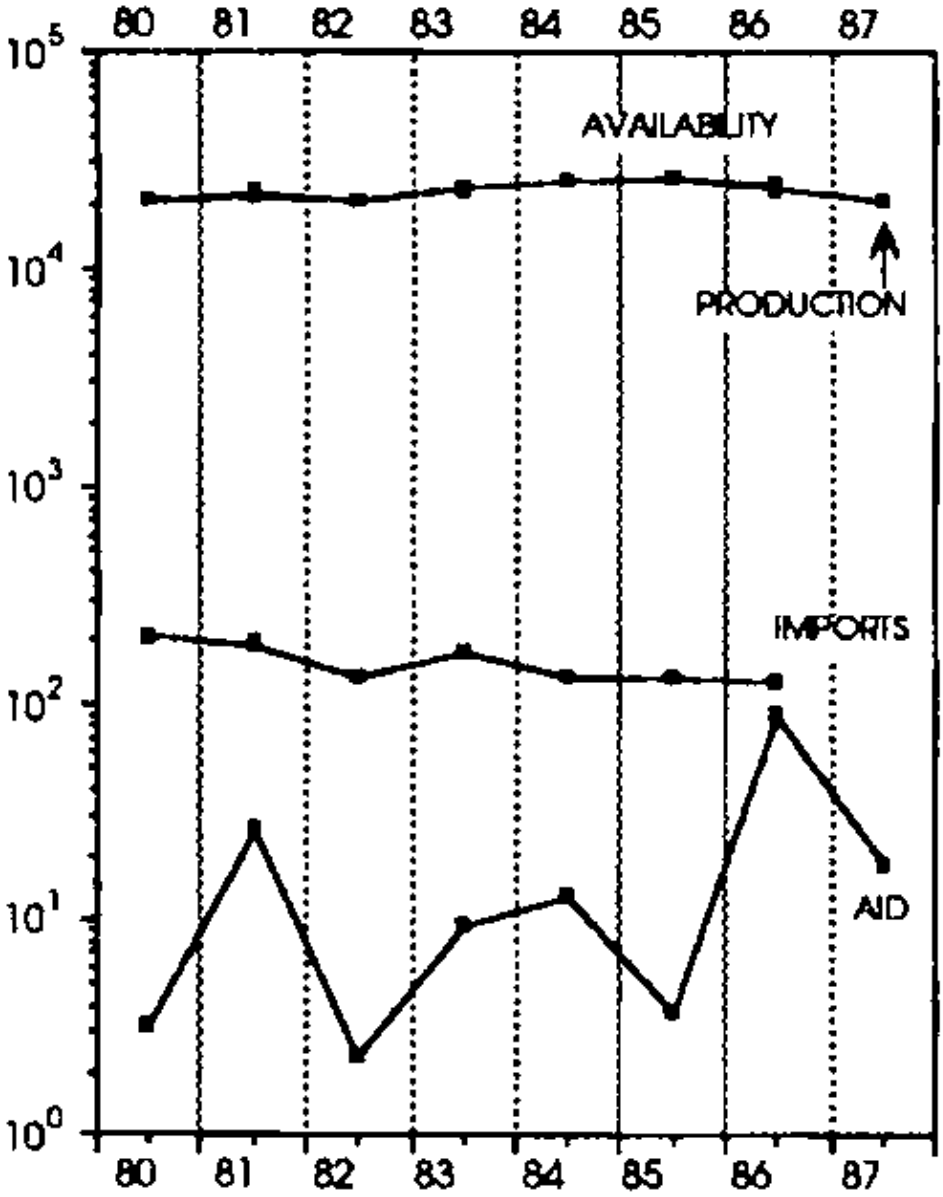


TRENDS IN UNDERWEIGHT CHILDREN

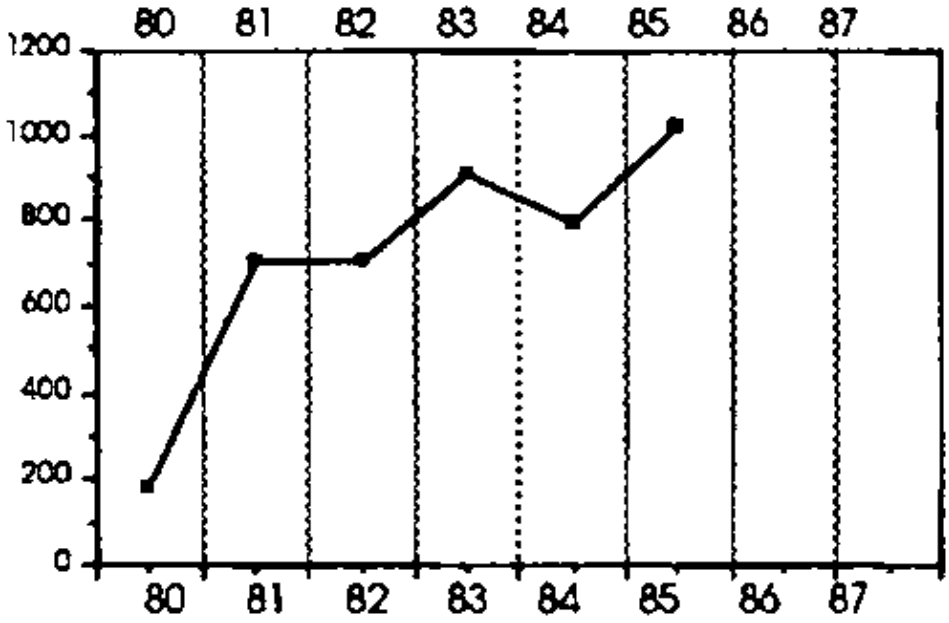
Prevalence of underwight (Wt/Age, Thai Standards) in children aged under 5 years. Gomez Grade I National Weighing Programme.



ADDITIONAL FOOD & ECONOMIC INDICATORS

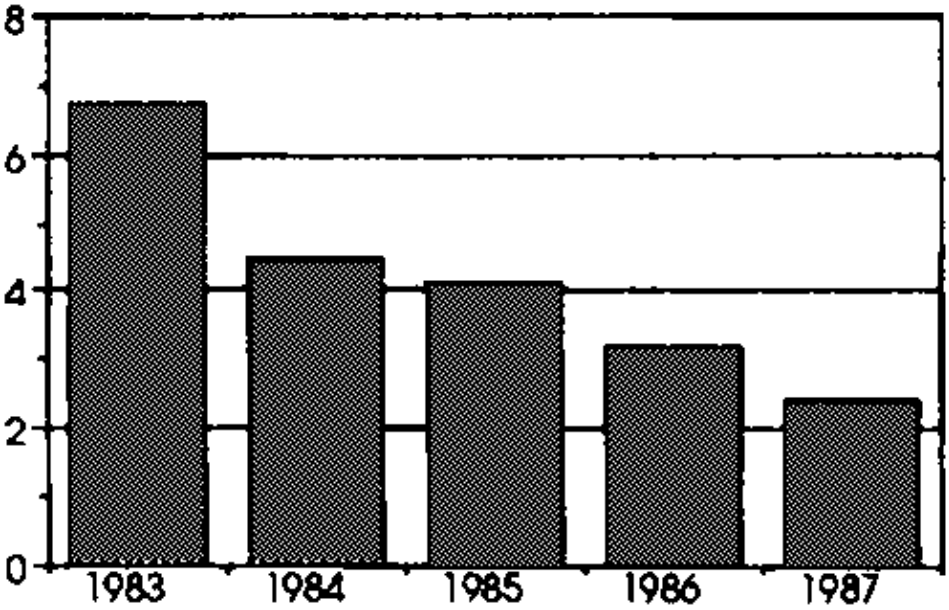


CEREALS (1,000 MT)

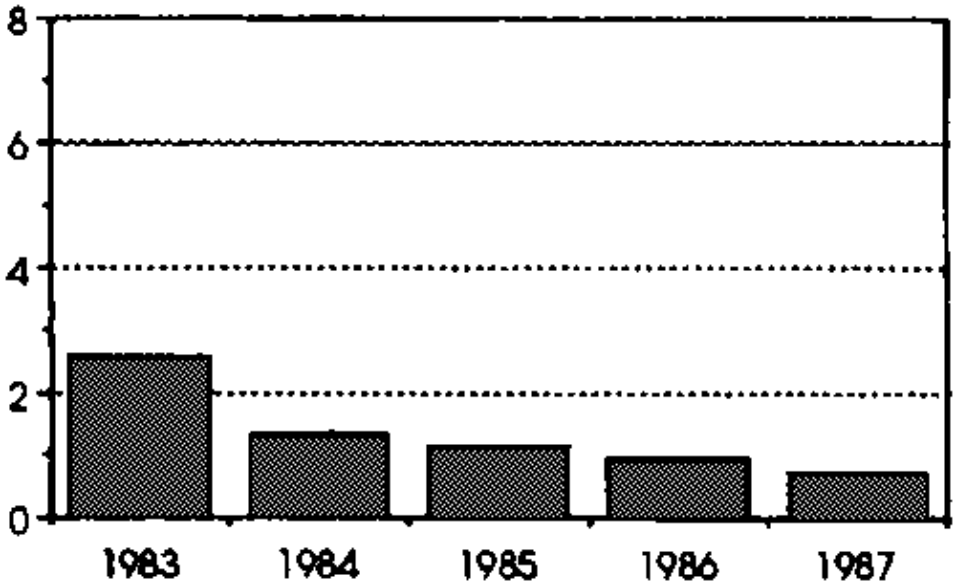


IMF CREDIT (US $ MILLIONS)

ADDITIONAL TRENDS IN UNDERWEIGHT

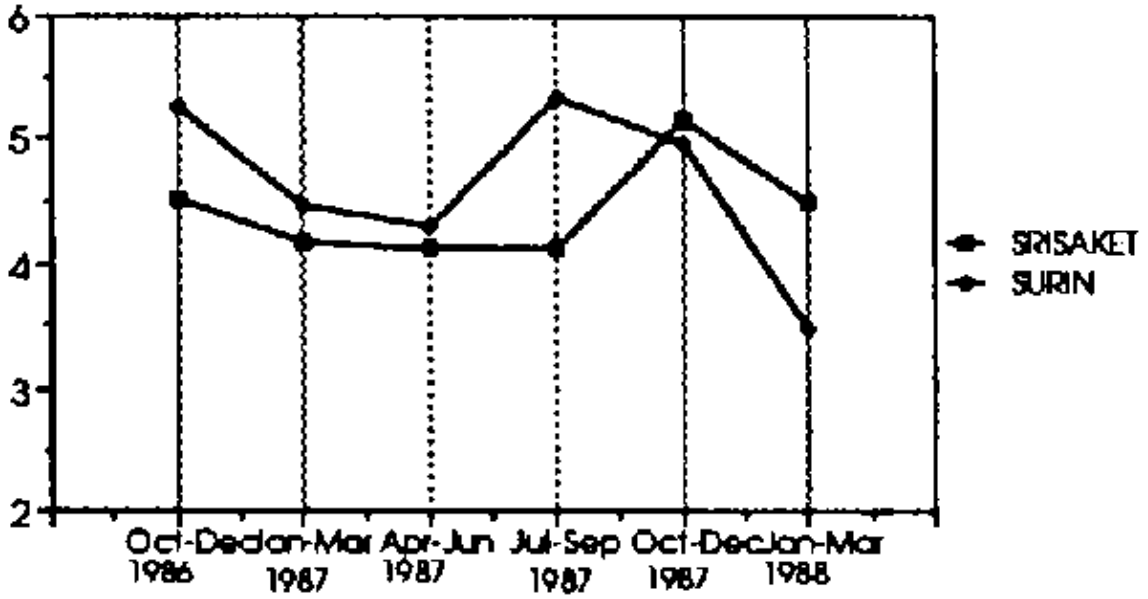


% PREVALENCE – Prevalence of underweight (Wt/Age. Thai Standard) children aged under 5 years. Gomez Grades II & III. National Weighing Programme.



% PREVALENCE – Prevalence of underweight (Wt/Age Thai Standard) children aged under 5 years in Bangkok. Gomez Grades II & III. National Weighing Programme.

QUARTERLY PREVALENCE



% PREVALENCE – Quarterly prevalence of underweight (Wt/Age. Thai Standard) children aged under 5 years. Gomez Grades II & III, for 2 provinces. National Weighing Programme.

LATIN AMERICA AND THE CARIBBEAN

LATIN AMERICA & CARIBBEAN

Bolivia

Bolivia has a total land area of 1.1 million sq. km., a population which was estimated in 1987 at 6.7 million, and a population density of only 6 persons/sq. km. The country has one of the lowest standards of living in Latin America with a per capita GNP of only US$600; a high percent of the workforce is employed in the informal economy. Approximately half of the total population, which is increasing at an average rate of 2.7% per annum, lives in urban areas. Seventy percent of the population lives in the Andean region, but the plains to the East of the Andes have experienced a high rate of population immigration, partly because of recent discoveries of petroleum and natural gas there. About half of the total workforce is employed in agriculture.

Life expectancy at birth has risen from 43 years in 1960 to 57 in 1985, and literacy rates have greatly increased since the sixties. The economy stagnated between 1979 and 1981, suffered a deep economic recession in 1982–83 which turned into a mild recession during 1984–86. In 1985 the government introduced a new economic stabilization programme which began to show fruits in the form of sharply reduced inflation in 1987. Foreign investment increased, foreign debts were rescheduled and IMF stand–by credits became available again.

Agriculture

Droughts and floods in 1980/81, 1983/84 and 1986 severely affected the production of food and of essential cash crops – sugar and cotton. During 1980–82, food prices increased at roughly the same rate as general prices (see FPI/CPI). Because of a sharp drop in 1983 in both domestic cereal production and total food production (Food Production Index & Cereals: Production), food prices increased rapidly and at a faster rate than the general price level (FPI/CPI). Rising cereal imports and increased cereal aid provided a cushion at first, but cereal imports dropped sharply in 1984 before returning to previous levels. Cereal aid dropped in 1985, when domestic production was high, and increased to previous levels in 1986 as production fell. Wheat is a major imported cereal in Bolivia, and in 1985 it accounted for more than half of total cereal imports. The 1986 droughts and floods did not seriously affect cereal production, though total food production was down sharply on the 1985 high. Cereal availability rose considerably between 1983 and 1986 (Cereal Availability), and total food availability (as Kcals per day) recovered after 1983 and remains stable.

Cereal production in 1987 was comparable to the previous year's following a prolonged dry spell during the growing season. The Food Production Index fell for the second year running.

The Economy

Reduced food production as a result of the drought and floods no doubt contributed to inflation. However, reduced export earnings (particularly from minerals and natural gas) were responsible for a substantial reduction in imports of consumer and capital goods between 1980 and 1985. Major devaluations of the currency took place in 1982, 1983, 1984 (twice) and 1985 (Exchange Rate). It was not until 1987 that the hyper–inflation –which had been experienced since 1981/82 (CPI) – was brought under some degree of control. This was managed as a result of the government's economic package of a floating exchange rate, monetary control, elimination of subsidies, and wage control in the public sector.

Nutrition

Young children in rural areas may have suffered considerably from the food shortages caused by the droughts and floods of 1983, on top of the impact of hyper–inflation. Although the age samples of children in 1981 and 1985–87 are not the same, nor is the sampling frame, the available evidence suggests that weight deficiency was significantly higher in 1985 than in either 1981 or 1986–'87 (see Underweight Children)[1].

> [1] Specifically, the 1985 value for Urban underweight prevalence graphed on the previous page is likely to be an underestimate both of a national figure and of that for the same age–band as 1981. This follows because a) rural prevalences of underweight are consistently higher than urban (see Additional Prevalence Indicators, middle chart), and b) the inclusion of children in the 0–5 month age–range (for 1985: 0–59 months) will tend to lower the prevalence estimate as compared to 1981 (6–59 months), since underweight is likely to increase after 6 months of age.

Further comparisons between urban and rural groups from these studies for 1981 and 1987 (see Additional Prevalence Indicators) provide evidence of improvement for the rural children but not for their urban counterparts – this applies to both percentage underweight and percentage stunted.

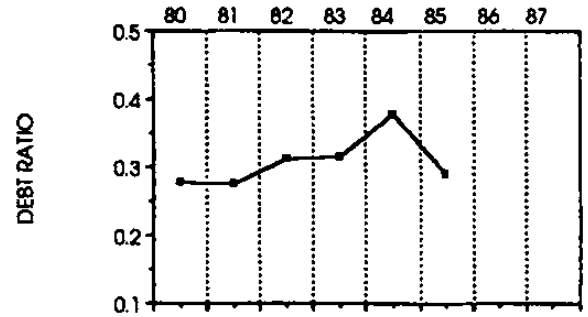
Overall then, rural children appear to have recovered more rapidly when food supplies rose significantly after the 1983–84 shortages. On the other hand, children in urban areas may have suffered more from the effects of hyper–inflation which affects access to food more seriously in the cities. By 1987 average prevalences of underweight had returned to around the levels seen in 1981.

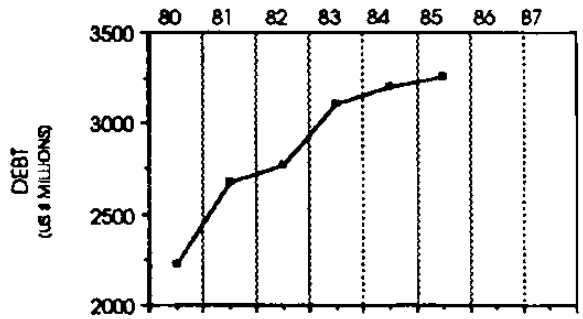
Separate studies of under fives between 1985 and 1987 in La Paz indicated only a very slight drop in the percentage of underweight children (see Additional Prevalence Indicators, 1st. chart); these percentages remain well above expected levels as indicated by the reference line.

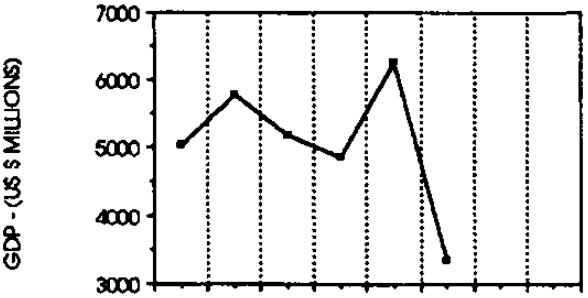
BOLIVIA

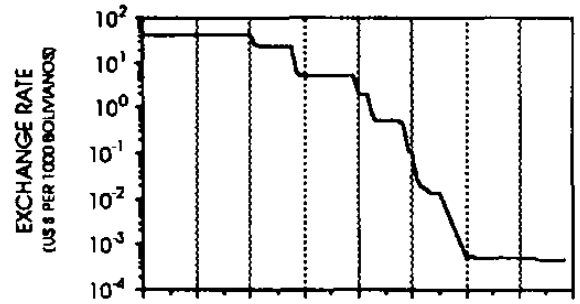
POPULATION: 6.7 M	IMR: 111
POPULATION DENSITY: 6 per sq. km.	U5MR: 176
POP. GROWTH RATE: 2.7% per annum	GNP (PER CAPITA): US$600
PERCENTAGE URBAN POP.: 49%	ESTIMATED PREVALENCE LEVEL UNDERWEIGHT CHILDREN: 10% – 20%

ECONOMIC INDICATORS

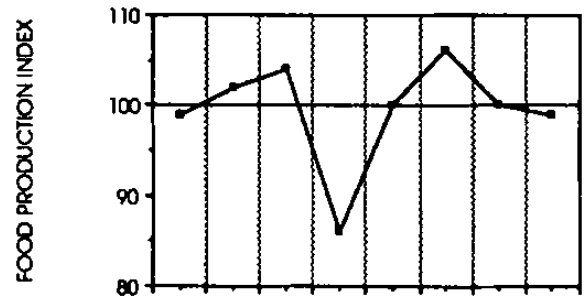


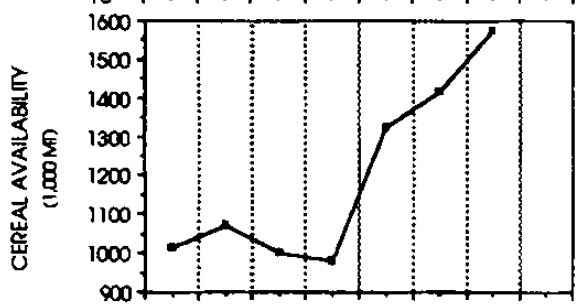


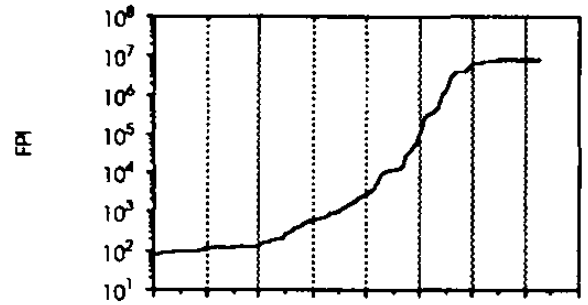


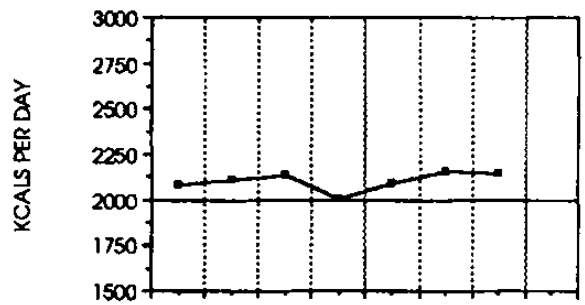


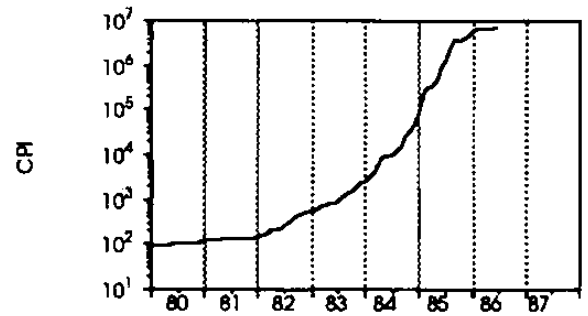
FOOD INDICATORS

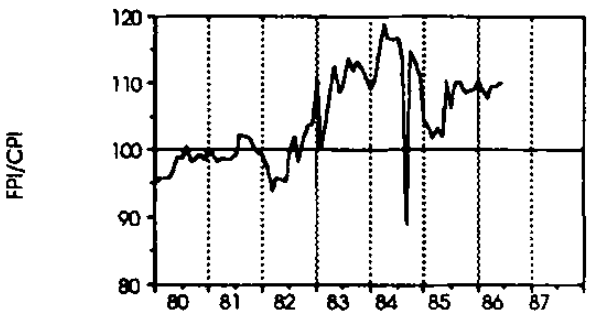






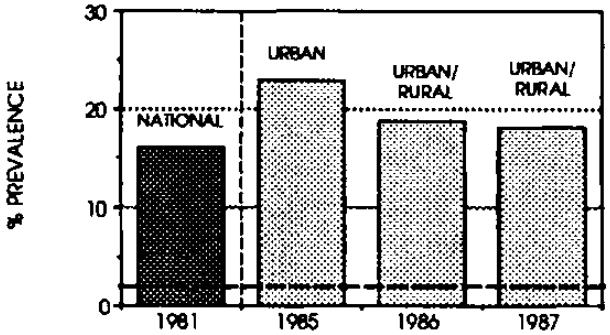




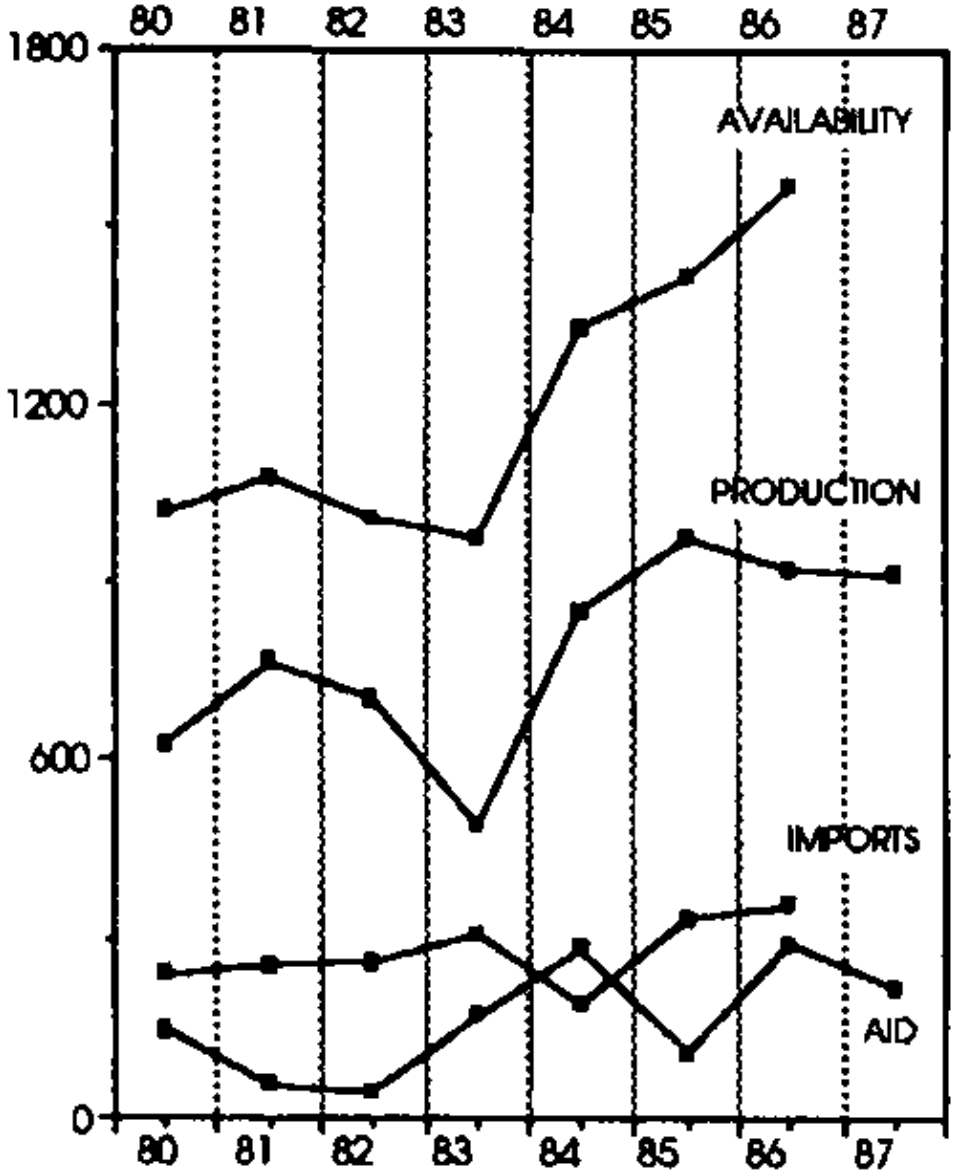


UNDERWEIGHT CHILDREN

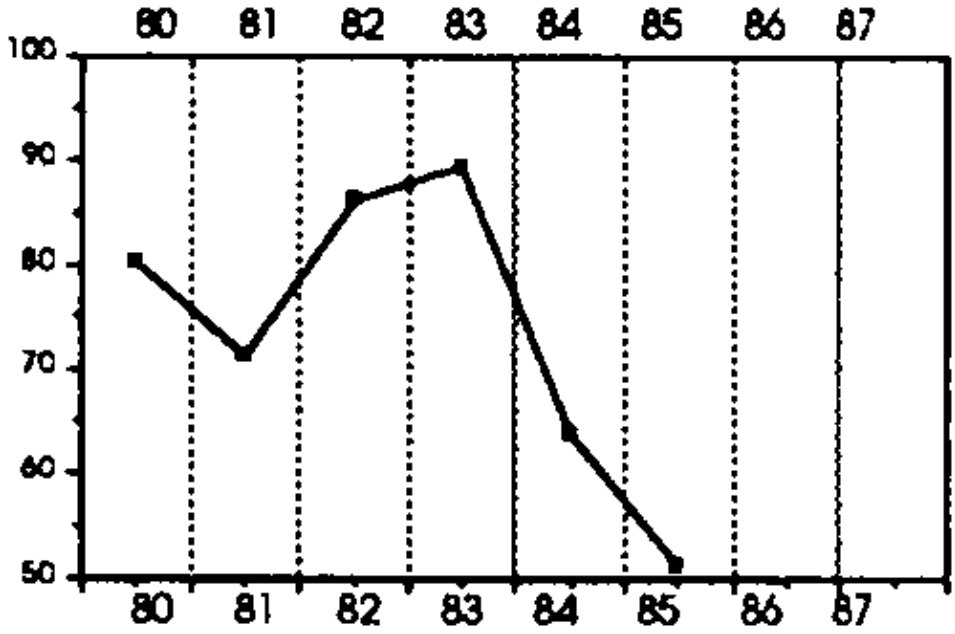
Prevalence of underweight (<-2 S.D. Wt/Age) in pre-school children. Age: 1981(6-59m), 1985 -87(0-59m). Health Centre data.



ADDITIONAL FOOD & ECONOMIC INDICATORS

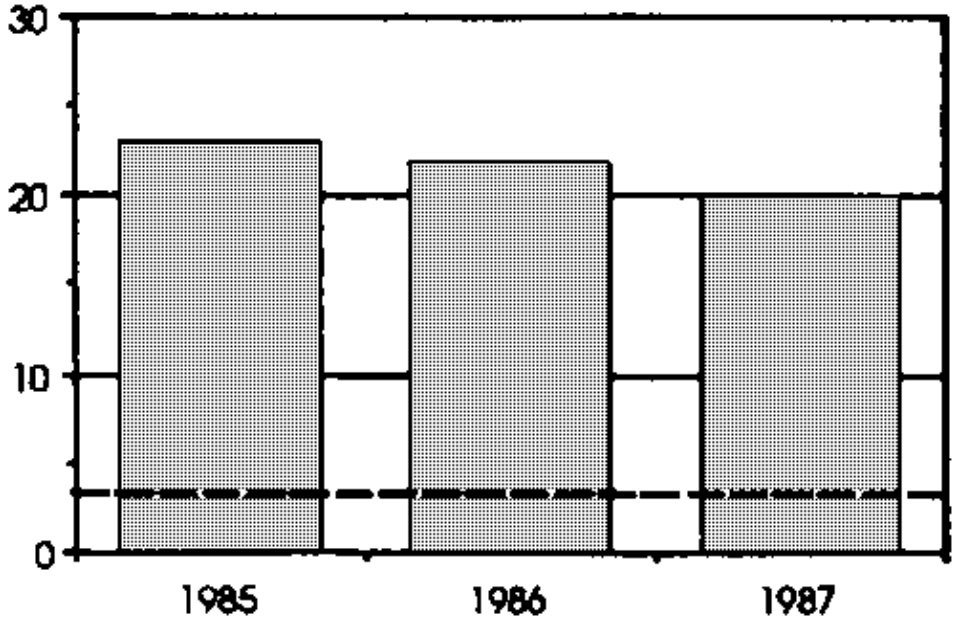


CEREALS (1,000 MT)

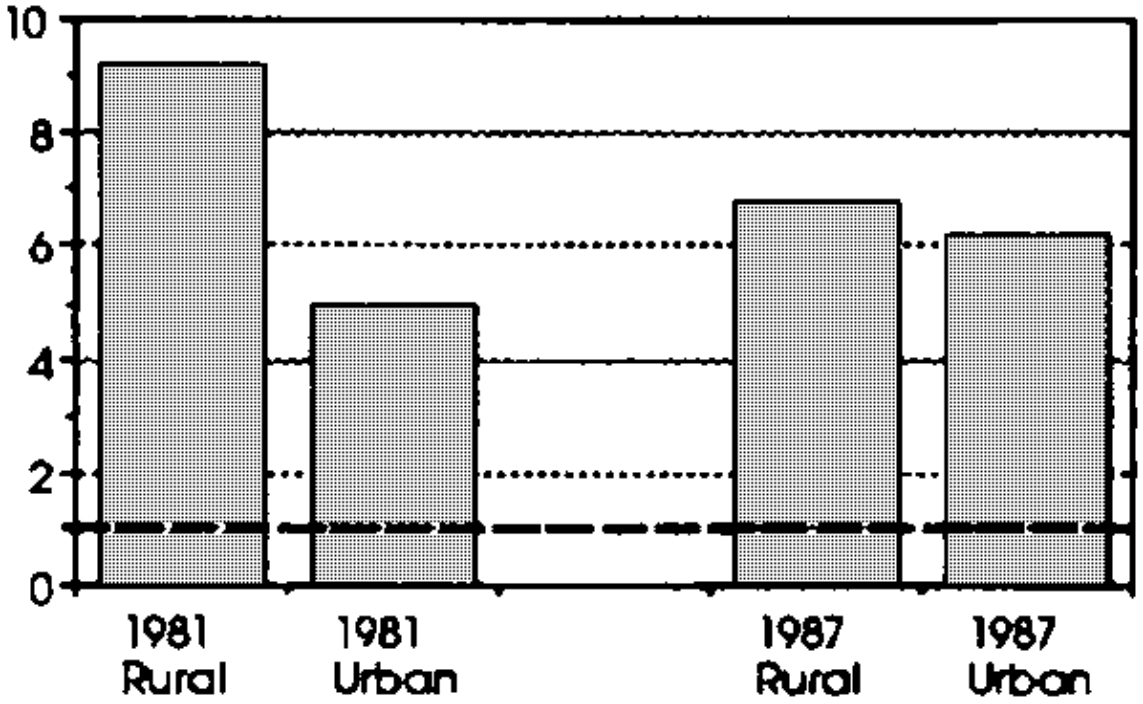


IMF CREDIT (US $ MILLIONS)

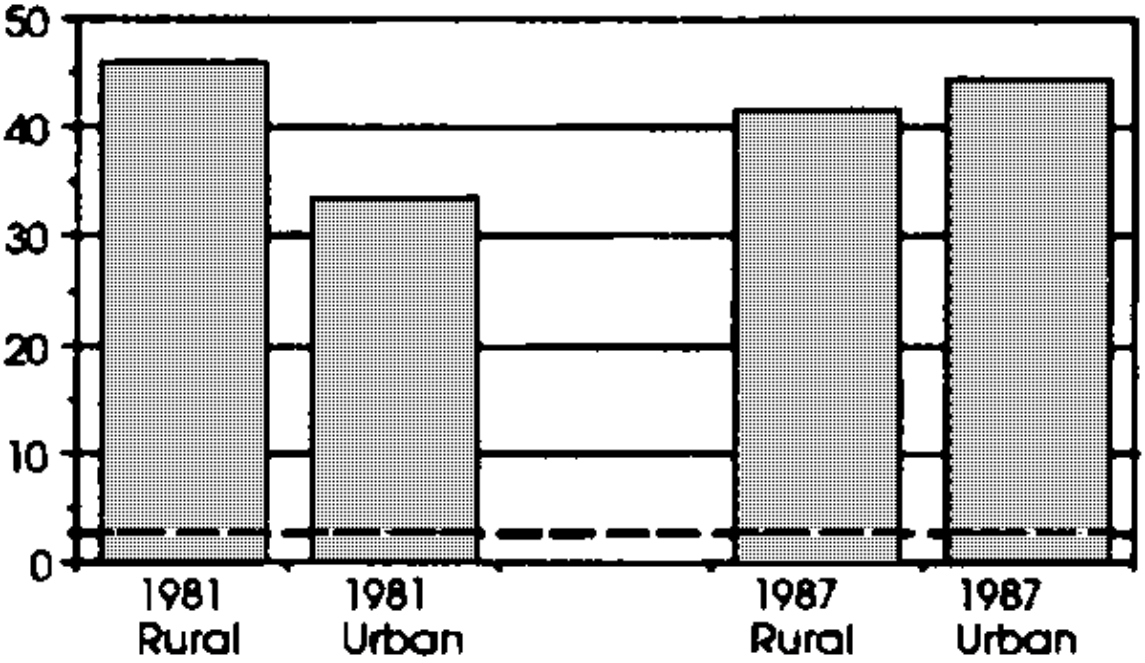
ADDITIONAL PREVALENCE INDICATORS



% PREVALENCE – Prevalence of underweight (<3rd. percentile Wt/Age) in children under 5 years in La Paz. Health Centre data.



% PREVALENCE – Prevalence of underweight (<75% Wt/Age) in children aged 6–59 months (1981), 0–59 months (1987). Health Centre data



% PREVALENCE – Prevalence of stunting (<–2 S.D. Ht/Age) in children aged 6–59 months (1981), 0–59 months (1987). Health Centre data.

Chile

Chile has achieved a relatively high level of socio–economic development. Life expectancy at birth stands at 71.5 years (1986), and 92% of the population over 15 years is literate. The infant mortality rate is 18.6/1000 (1987), down from 97.3/1000 in 1965. The 1986/87 indices are broadly similar to those found in the developed economies of Europe.

Chile has a total land area of 756,626 sq. km., and a total population of 12.5 million (1987), a third of whom live in the capital city Santiago. Ecologically the country can be divided into three regions: dry and hot in the north, wet and cold in the south, and temperate in the central areas. It is in the central regions that most agricultural activities take place.

The Economy

Agriculture generates only some 10% of gross domestic product. The country is a net food importer. Wheat is the main staple food, and Chile is close to being self–sufficient in wheat production now, but in the early part of the 1980's the country had to rely heavily on imports. Chile suffered from a severe economic recession in 1981–83 as a result of depressed copper prices and the world recession generally. Total imports fell by 50% in 1982 and at the same time the foreign debt rose significantly requiring 30% of export earnings for servicing (see Debt & Debt Ratio). Economic recovery came partly as a result of increased earnings from copper exports when the price recovered somewhat. In addition increased foreign investments, strict fiscal policy, selective import tariffs, and price supports, assisted the process. Declining imports produced trade surpluses in 1984–1987. The Chilean peso showed a consistent and substantial trend of devaluations starting in 1982. (Exchange Rate).

Agriculture

During the period of economic recovery (1984–87), the per capita availability of basic foods fluctuated from year to year. With the exception of fats, the per capita availability of the remaining food fell between 1984 and 1985 as a result of declining imports of wheat, rice, sugar, and milk. At the same time the domestic production of rice, potatoes and meat declined, while cereal production rose significantly (Cereals: Production). Availability of potatoes continued to drop as domestic production fell. Food prices increased sharply between 1984 and 1987 (FPI), while real earnings decreased by 3% during this period. Food prices had risen less rapidly than the general price level until 1985, but then began to increase at a faster rate. Overall food availability (as Kcals per day) was reduced only slightly between 1982 and 1986.

Cereal production reached a record high in 1987 mainly due to an increase in the area sown. The maize crop for 1988 (harvested in May) yielded a higher return than 1987's; end–of–year weather conditions were reported as satisfactory and it is anticipated that the wheat crop (harvested in Dec.) will be comparable to the previous year's record.

Nutrition

There are a number of national food and nutrition programmes operating in Chile. Several of these programmes, such as for severely malnourished children, have expanded their coverage during the 1980's.

Total milk distributed for infants and expectant mothers during 1982–85 increased over 1977–81 levels. The coverage of the National Health System also improved during the 1980's. In 1981 unemployed persons with children under five years of age became eligible to receive an income subsidy from the State, and in 1982 these benefits were extended to include children under 8 years of age and pregnant women. These economic benefits no doubt counteracted somewhat the effects of the economic recession for vulnerable groups.

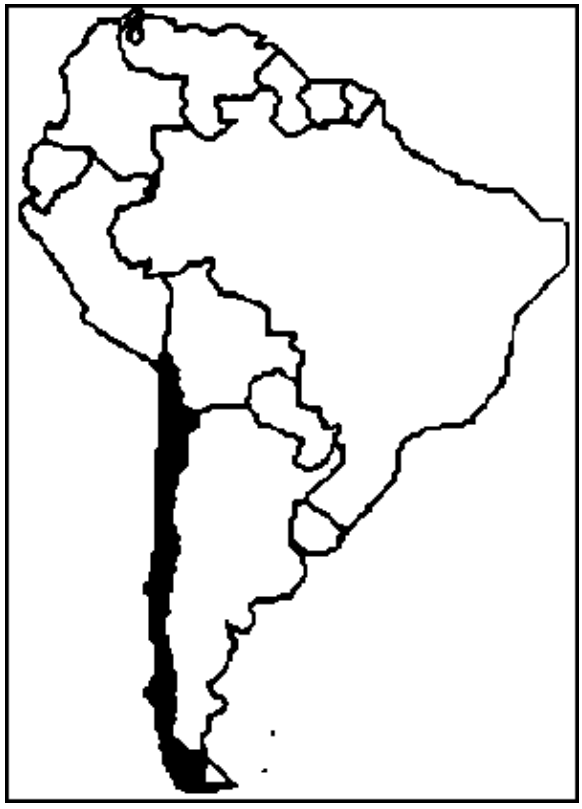
The prevalence of underweight children (NB: using a local – Sempé – weight–forage curve, < 1 S.D.) of less than six years of age fell from 15.9% in 1976 to 8.8% in 1987, with most of the gain occurring before 1982 (Underweight Children). The percentage below 2 S.D.'s reference Wt/Age was less than 1% in 1987. The expected prevalence – as calculated from the normal or Gaussian curve – is marked on the graphs. It will be seen that the recorded figures are now well below this line. From the comparison of recent years (1984–'86) there is some evidence of a small rise in the prevalence of growth and weight deficits in children under 24 months (Additional Prevalence Indicators). This is less evident in the 2 – 5 year old's.

Obesity is a significant and possibly growing problem in Chile. The percentage of children aged 10 – 14 years in excess of 120% of the reference median was 10.3%, 10.6% and 12.0% between 1983 and 1985, respectively.

The monthly prevalences of weight deficit (<–2 S.D.'s on the Sempé Curve) for 1984 through 1986 are graphed (Additional Prevalence Indicators). These show a seasonal effect with a high in Jan./Feb. and a low in Sept./Oct.

The monthly prevalence of low birth weight (LBW) is also shown for 1985 and 1986. Again there is evidence for seasonality, with a peak around June. The annual figures for LBW for 1984 through 1987 are: 6.5%, 7.0%, 7.0% and 6.9%, respectively. These levels are low and comparable to those observed in developed countries.

CHILE



POPULATION: 12.5 M

POPULATION DENSITY: 16 per sq. km.

POP. GROWTH RATE: 1.7% per annum

PERCENTAGE URBAN POP.: 84%

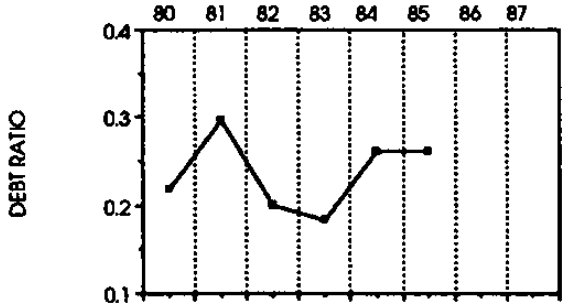
IMR: 20

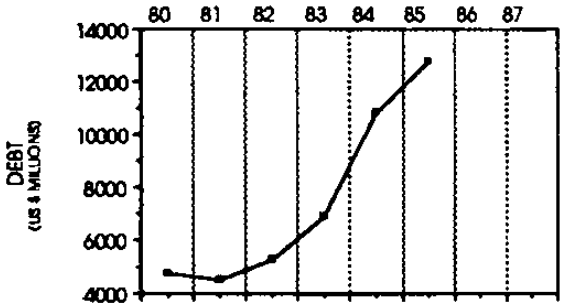
U5MR: 26

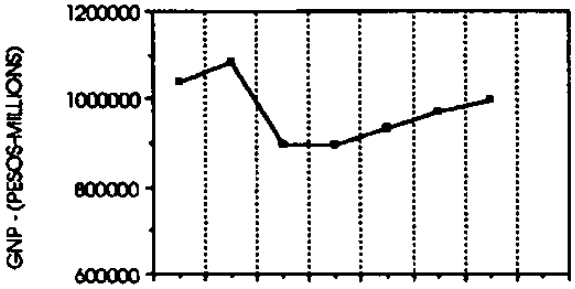
GNP (PER CAPITA): US$1,320

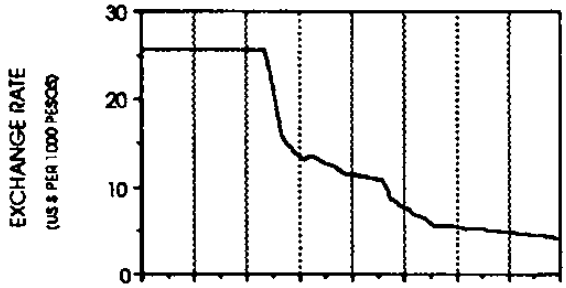
ESTIMATED PREVALENCE LEVEL UNDERWEIGHT CHILDREN: 0 – 10%

ECONOMIC INDICATORS

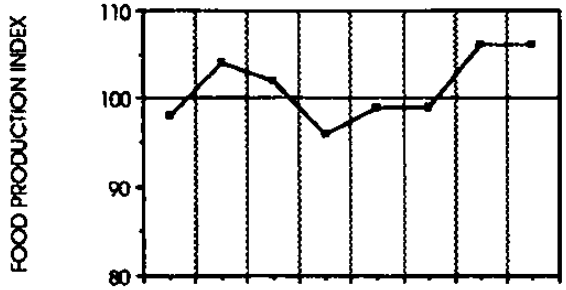


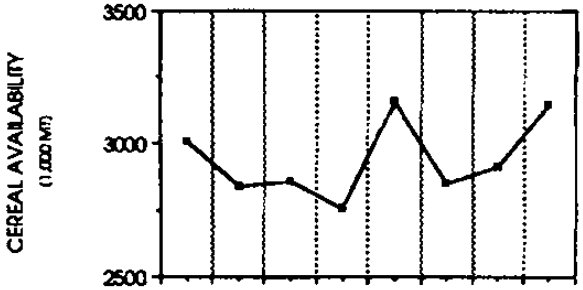


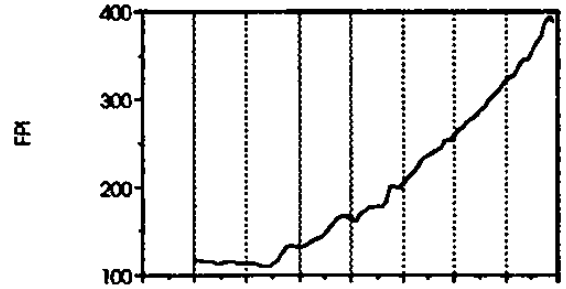


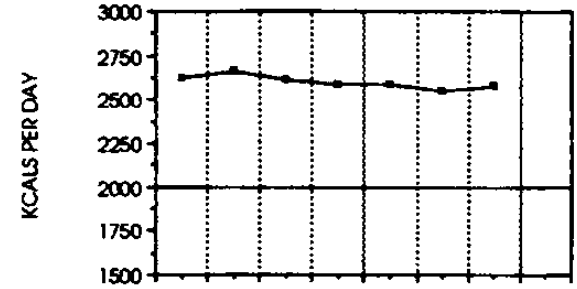


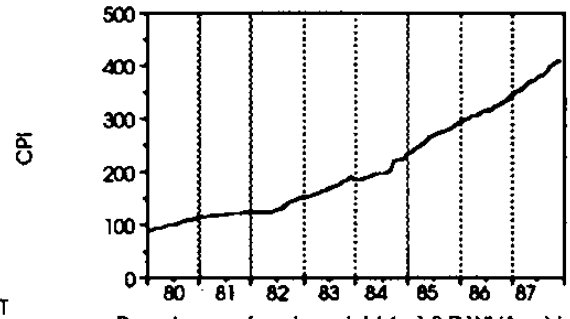
FOOD INDICATORS

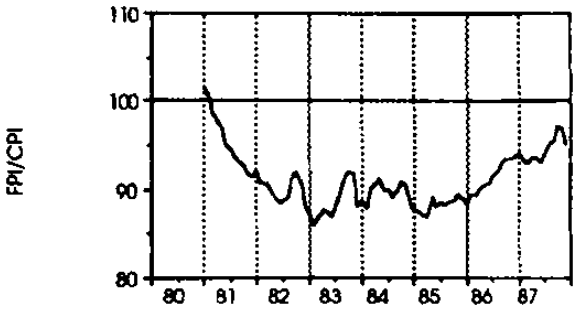




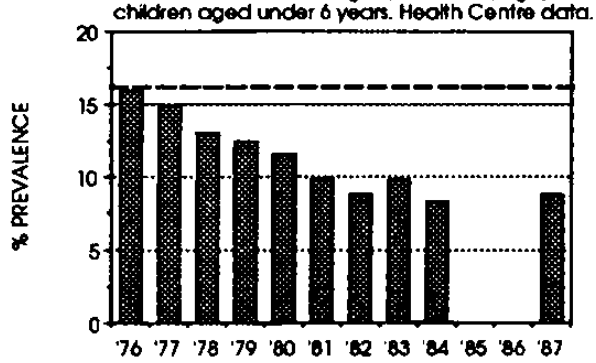


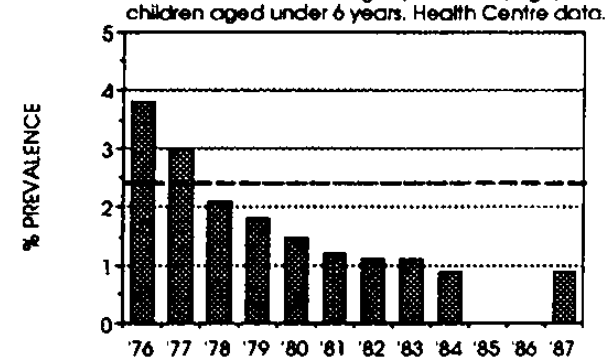




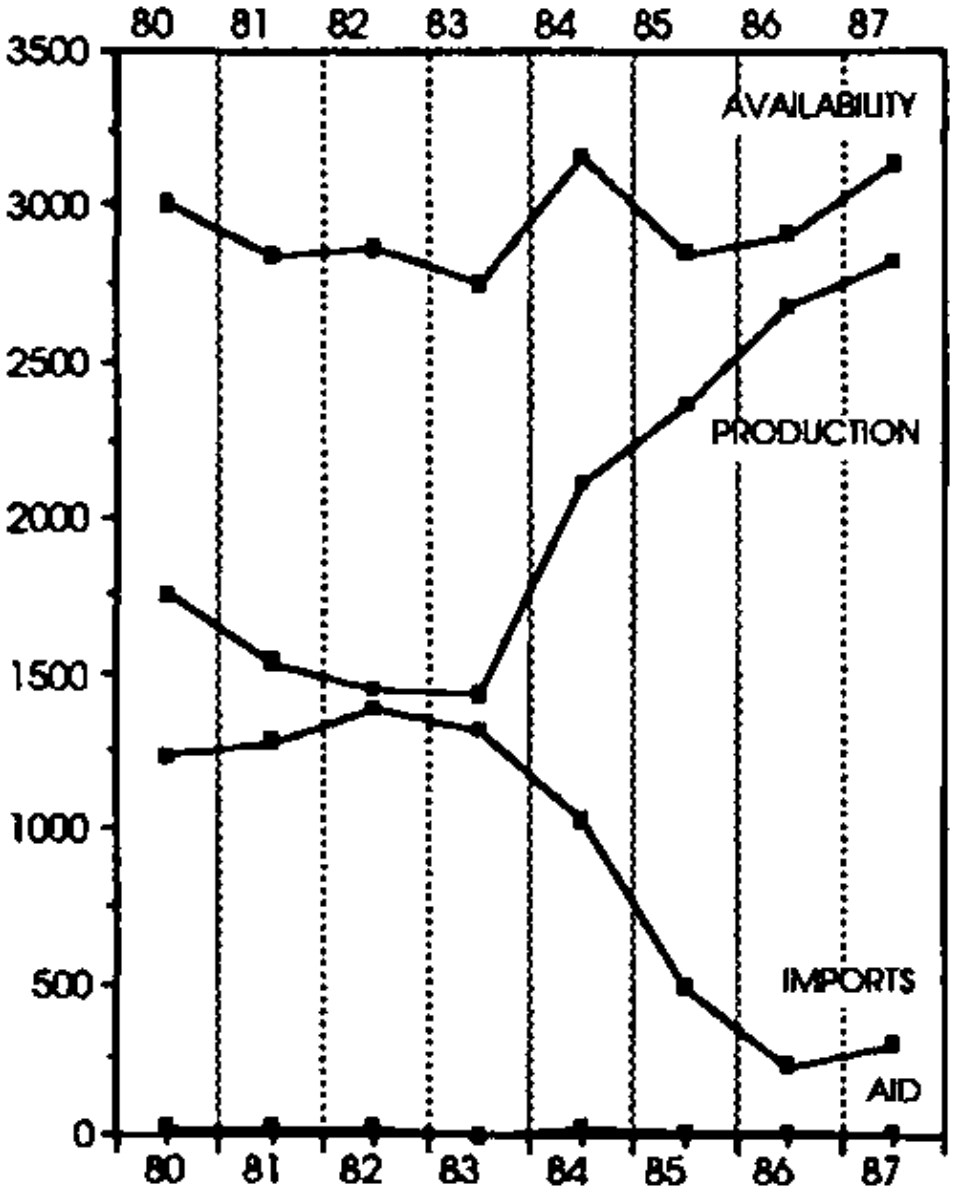


UNDERWEIGHT CHILDREN

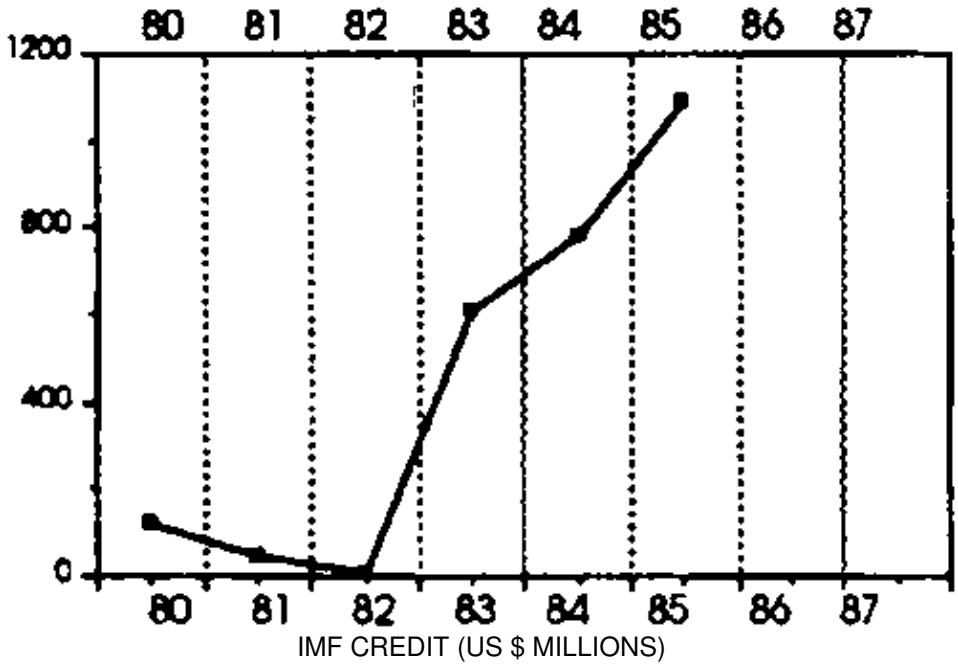




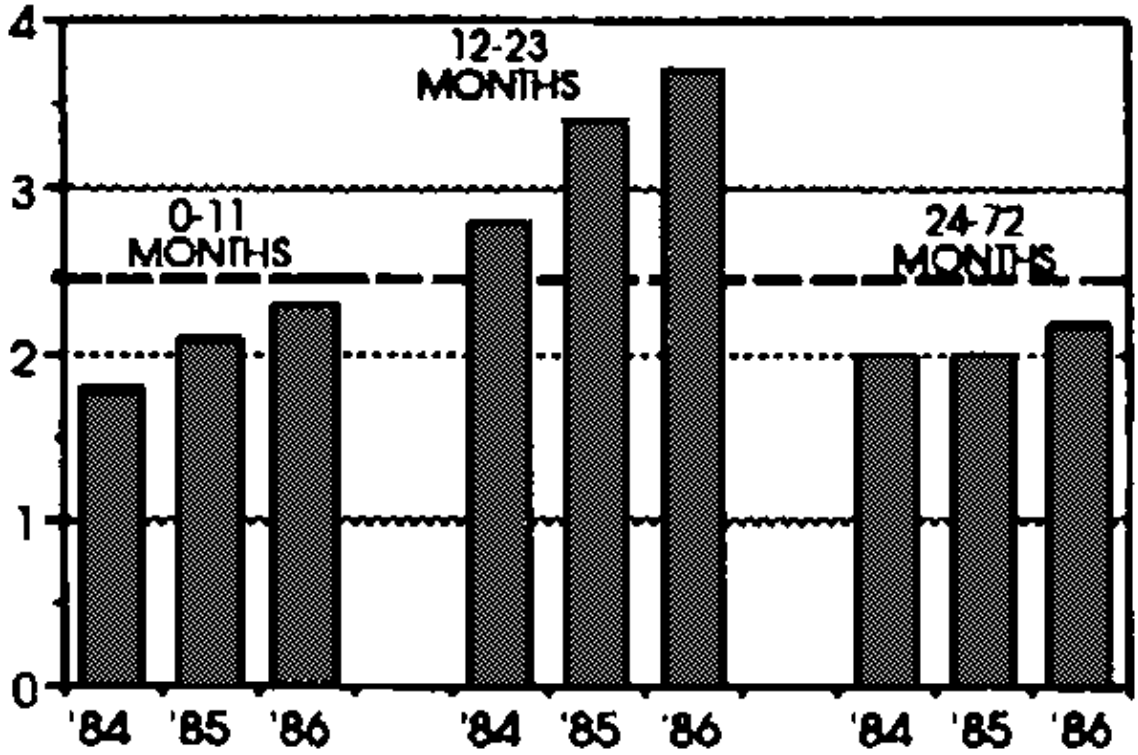
GRAPHICS



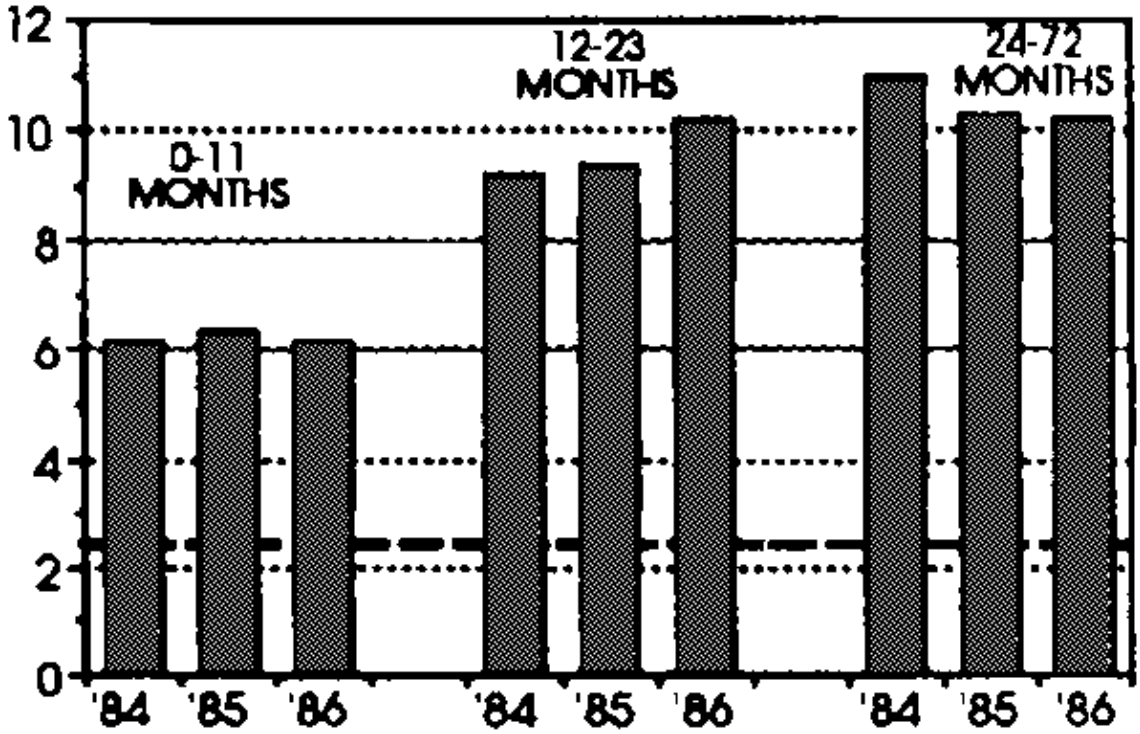
CEREALS (1,000 MT)



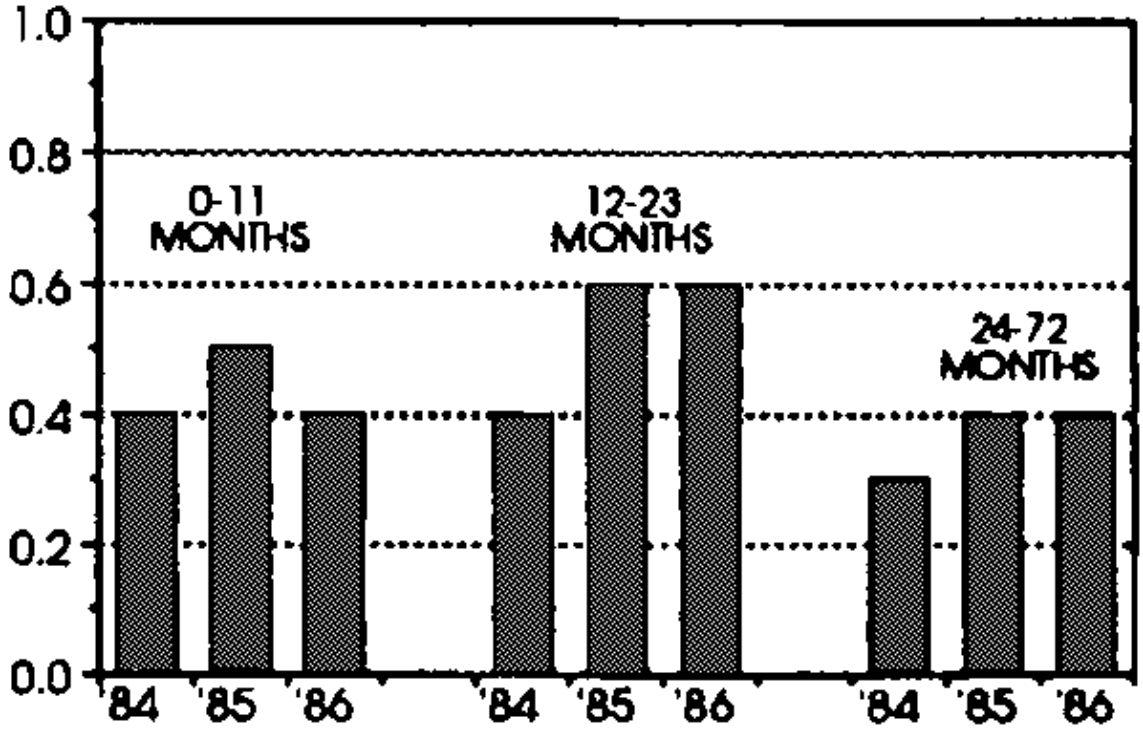
IMF CREDIT (US $ MILLIONS)



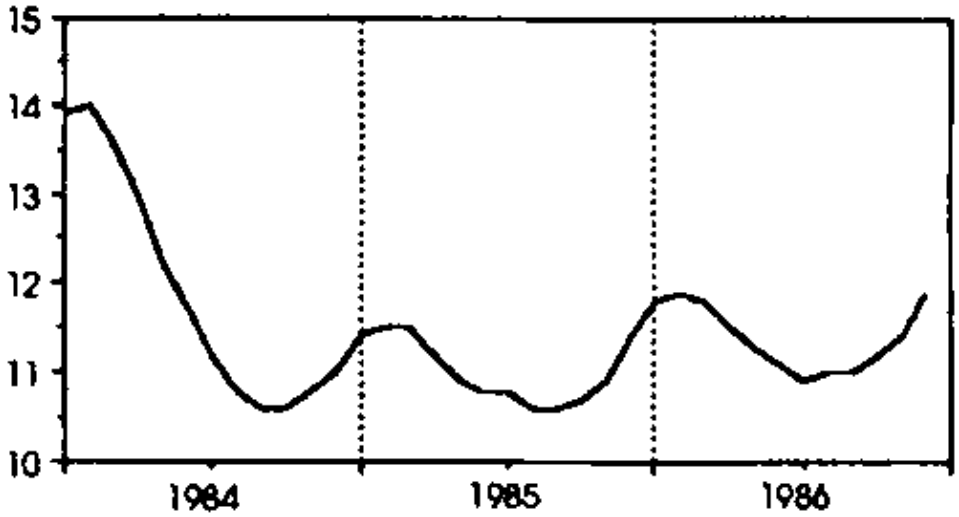
% PREVALENCE – Prevalence of underweight (<–2 S.D. Wt/Age) in children aged under 6 years, by age group. Health Centre data.



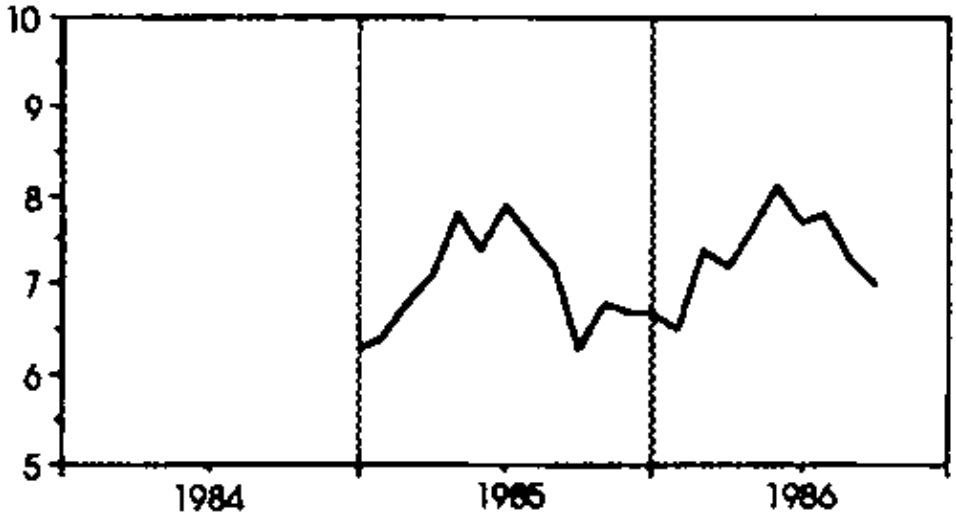
% PREVALENCE – Prevalence of stunting (<–2 S.D. Ht/Age) in children aged under 6 years, by age group. Health Centre data.



% PREVALENCE – Prevalence of wasting (<–2 S.D. Wt/Ht) in children aged under 6 years, by age group. Health Centre data.



% PREVALENCE – Monthly prevalence of underweight (<–1 S.D. Wt/Age) of children aged under 6 year. Health Centre data.



% PREVALENCE – Monthly prevalence of Low Birth Weight (< 2,500 gms)

Colombia

The Republic of Colombia occupies an area of 1,141,748 sq. km., with a total population of 29.9 million (1987) and an average of 26 persons/sq. km. The population is growing, on average, at the rate of 1.9% per annum. Ninety–five percent of the population is located in the area to the west of the Andes (46% of the territory). Roughly two–thirds of the population lives in urban areas.

The Economy

Colombia suffered an economic recession during the early part of the 1980's, followed by an economic recovery starting in 1984. Economic growth accelerated in 1986 partly because of high international prices for coffee and a poor coffee harvest in Brazil. However, the recent fall in world coffee prices will very likely have slowed the rate of economic recovery during 1987. In response to the earlier recession, which was also due to the reduced international demand for coffee (co–incident with a flight of capital for investment abroad), government economic policy included several currency devaluations (in fact, the Colombian peso shows a continuing trend of devaluations during 1980–87 – see Exchange Rate), import controls and new incentives for foreign investment. The 1984–86 development plan as proposed, depended on foreign investment amounting to 55% of its total cost. The plan was only partially implemented. Colombia's foreign debt, which was considered low in 1981 with a healthy relation to GDP and export earnings, has grown considerably since (Debt Ratio & Debt Outstanding). Substantial foreign borrowings in 1987 were required to partially finance the government's 1987–90 investment plan for agrarian reform, amongst other adjustments to the economy.

Agriculture

The agricultural sector generates less than 25% of GDP, and absorbs about a quarter of the total workforce. Urban migration and increased mechanization in crop production have reduced the size of the agricultural workforce over time. Coffee is the leading commercial crop, while the traditional agricultural sector produces such staple foods as potatoes, maize, beans, cassava, as well as citrus fruits. Coffee contributes more than fifty percent of the total value of exports.

Total food production fell significantly in 1982 and 1983, and had not yet returned to 1981 levels by 1987 (Food Production Index). Cereal availability fell to a low in 1981, when cereal imports also dropped by more than 50% (Cereal Availability, Cereals: Imports & Aid). Cereal production and imports both rose again in 1982, increasing total cereal availability.

Between 1982 and 1986 domestic cereal production steadily fell while imports remained high. The sharp increase in 1987 in domestic cereal production was reflected in total cereal availability (Cereal Availability). Dietary energy availability did not vary to any degree over the 7 years from 1980 to '87 (Kcals per day). Rice is the principal cereal, consumed by more than 90% of households, but on the average contributes only 15% of total calories consumed.

Food prices rose faster than general prices during the second part of the period (1985–87), perhaps as an indirect result of the overall growth in the economy (CPI/FPI, CPI & FPI).

For 1988, the first season cereal crops which were harvested between July and September, were reported as being up on 1987's. However, hurricane damage may reduce the yield from the second season crop due to be harvested in early 1989.

Nutrition

There is evidence that in Colombia the prevalence of acute and chronic undernutrition has diminished over the last twenty years, at least in children below 3 years of age. (NB: The three national surveys are not strictly comparable as the age range increased slightly in 1986.) This trend is more evident in the rural population than the urban (Underweight & Stunted Children) and is seen in both prevalence of underweight and in prevalence of stunting.

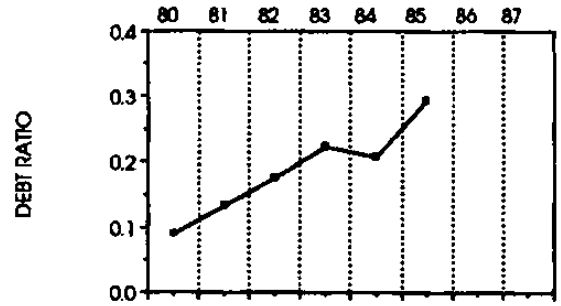
Regional differences were very marked in 1965 and 1977, but these are less dramatic in 1986 (Additional Prevalence Indicators). Bogota shows lower prevalences of both underweight and growth retardation. It also differs in that the 1977 values exceed the 1965 – a feature not seen in the other regions.

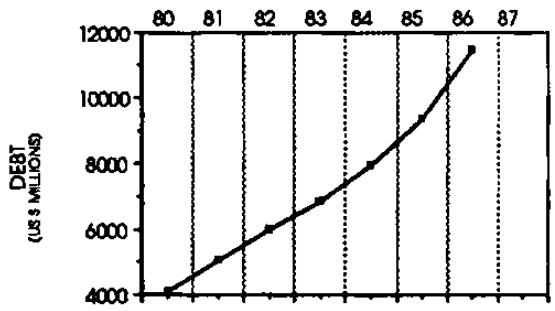
Quarterly prevalence of underweight for 12 municipalities (from surveys in the Depto. De Quindio) for children under 5 years during 1987 are also shown (Trends in Quarterly Prevalence) Substantial differences between the municipalities are evident in terms of the extent of the problem, although some seasonal patterns emerge depending on municipality. These have been grouped roughly on the basis of the rise or fall in prevalences between the 2nd. and 4th. quarters. While prevalences are high for all municipalities, those for Salento and Buenavista are substantially lower than the other nine.

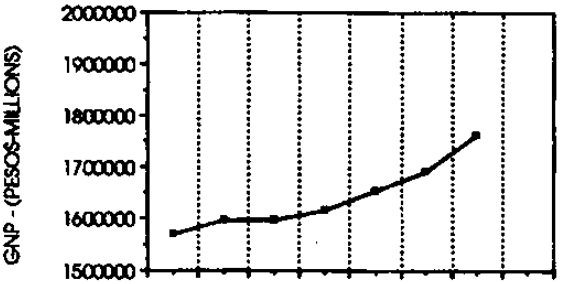
COLOMBIA

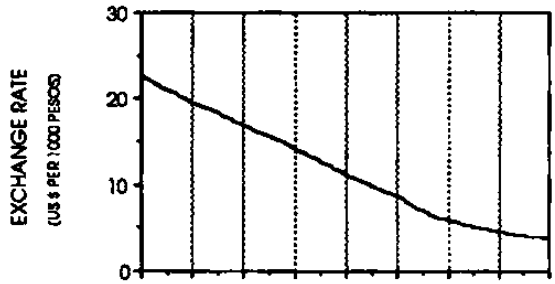
POPULATION: 29.9 M	IMR: 46
POPULATION DENSITY: 26 per sq. km.	U5MR: 69
POP. GROWTH RATE: 1.9% per annum	GNP (PER CAPITA): US$1,230
PERCENTAGE URBAN POP.: 69%	ESTIMATED PREVALENCE LEVEL UNDERWEIGHT CHILDREN: 0 – 10%

ECONOMIC INDICATORS

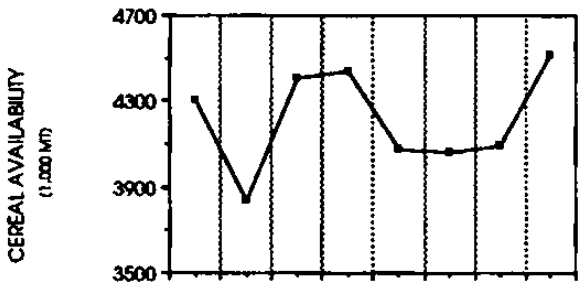


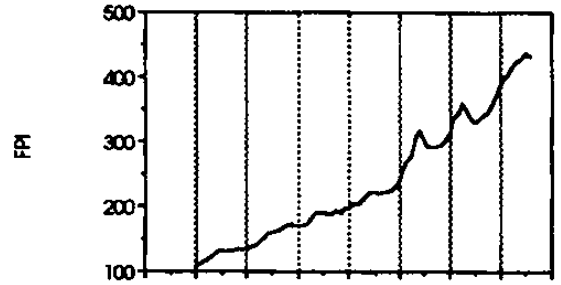


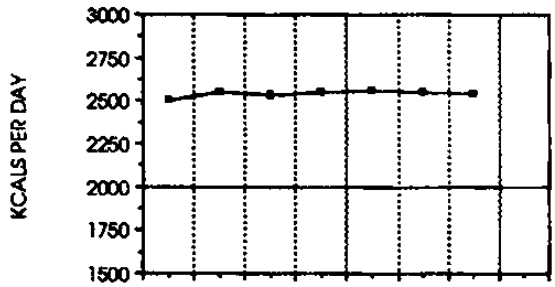


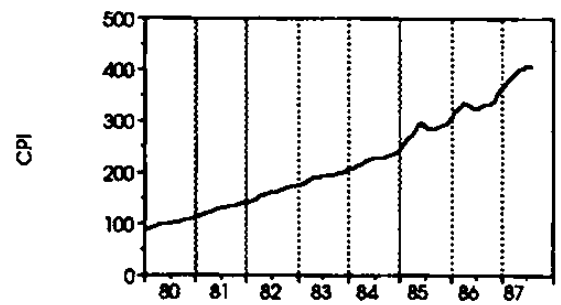


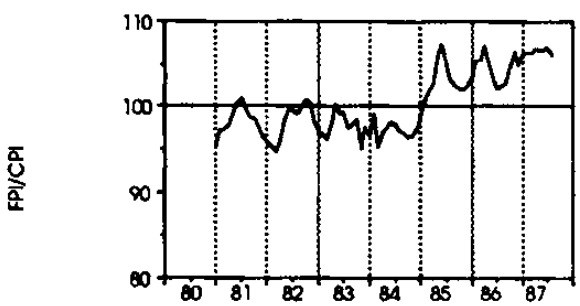
FOOD INDICATORS





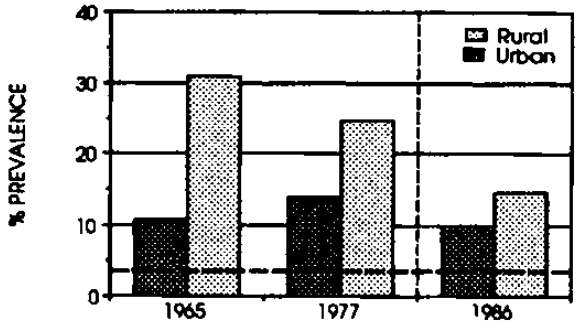




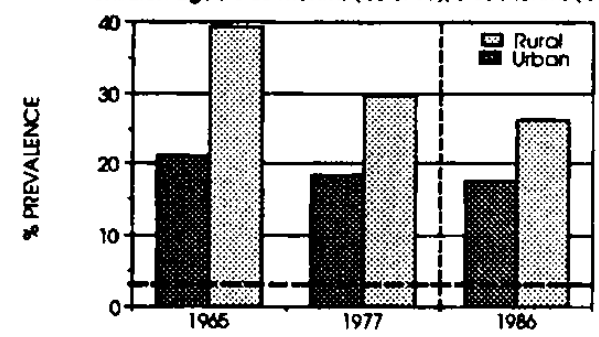


UNDERWEIGHT AND STUNTED CHILDREN

Prevalence of underweight (<3rd. Percentile Wt/Age) in children aged 6-35 months ('65 & '77), 3-35 months ('86)

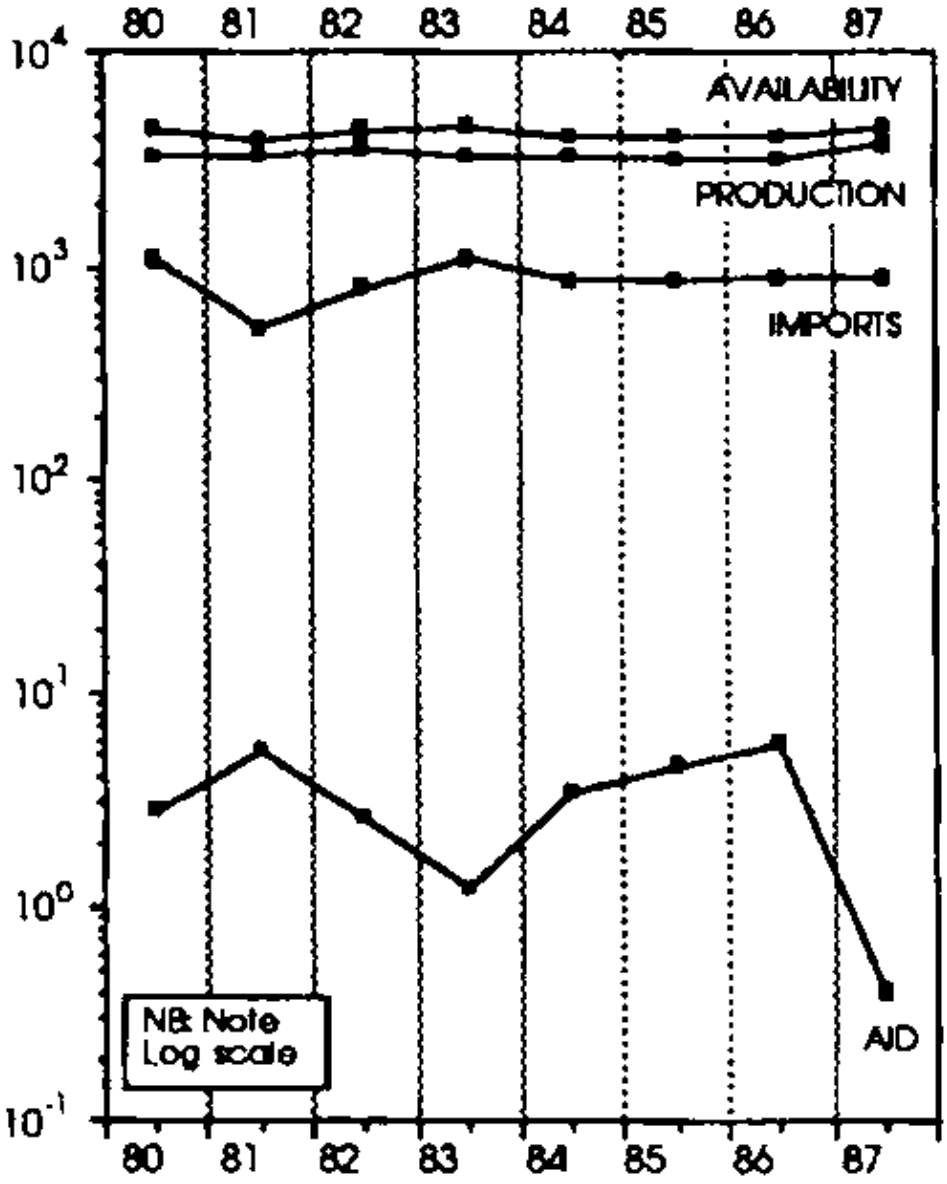


Prevalence of stunting (<3rd. Percentile Ht/Age) in children aged 6-35 months ('65 & '77), 3-35 months ('86)

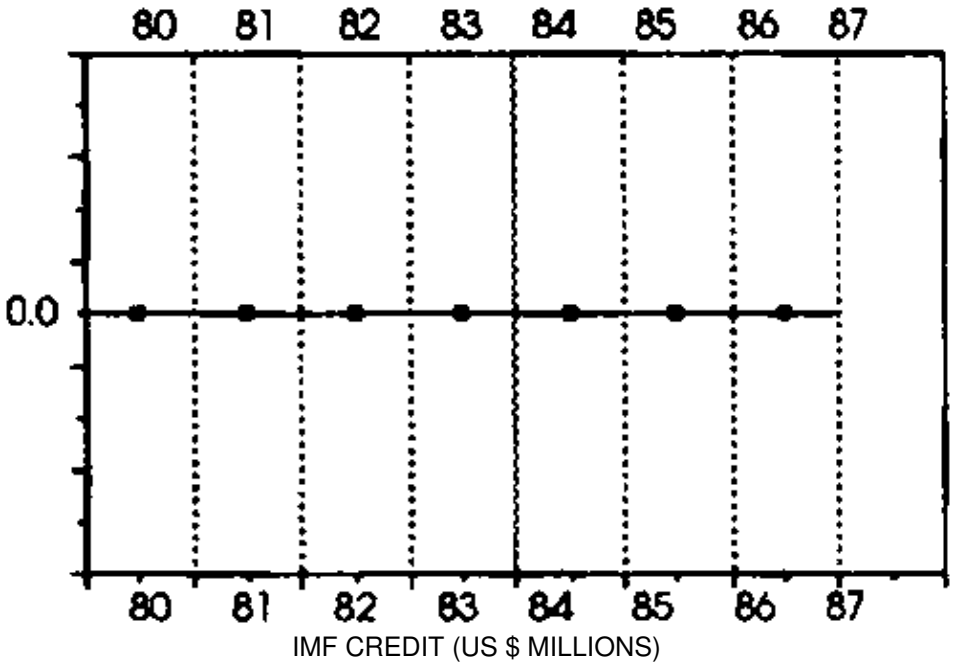


GRAPHICS

ADDITIONAL FOOD & ECONOMIC INDICATORS

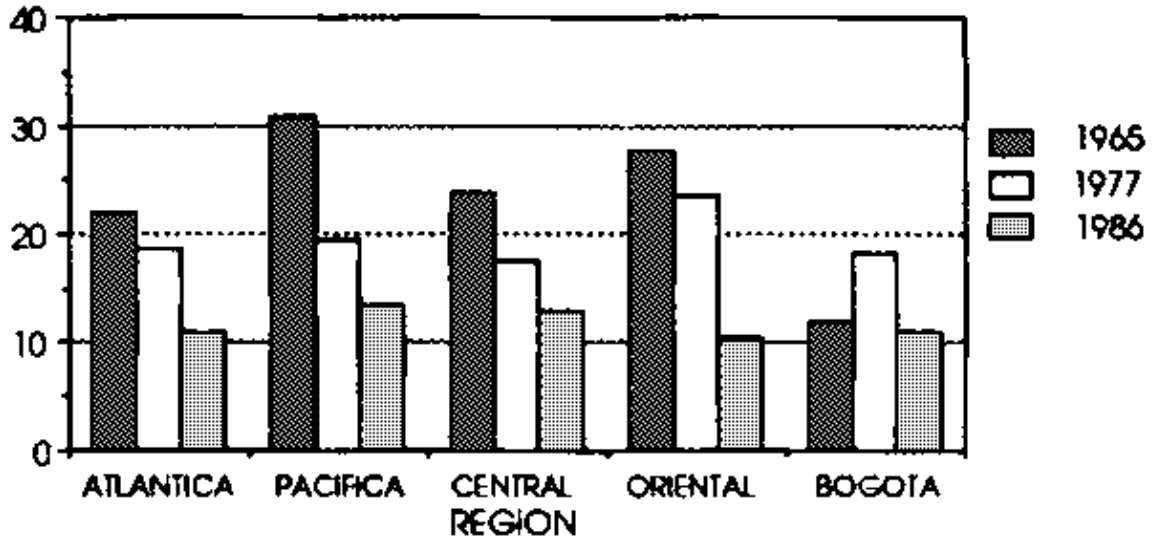


CEREALS (1,000 MT)

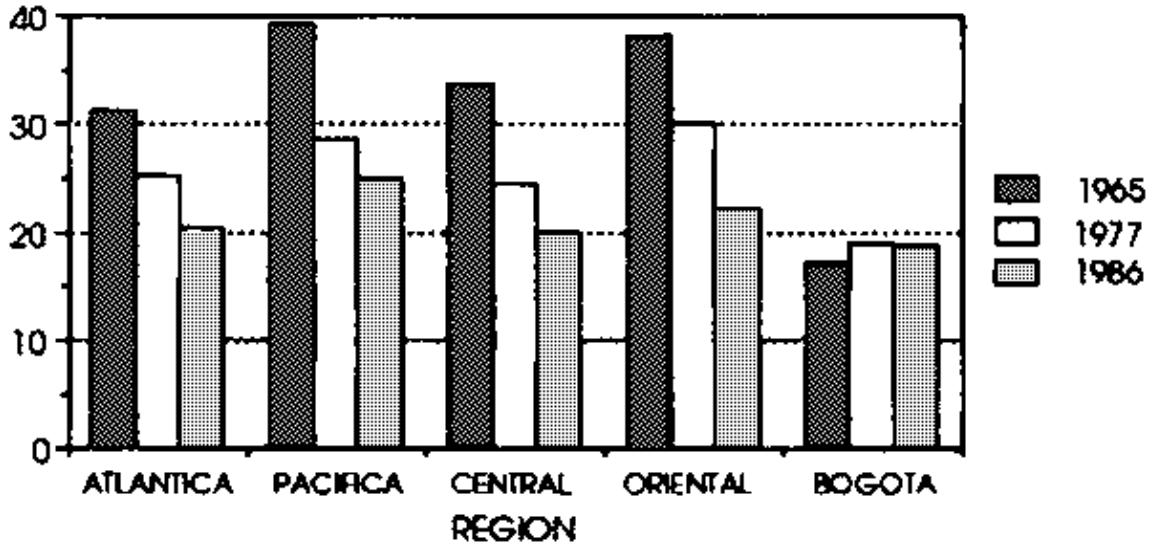


IMF CREDIT (US $ MILLIONS)

ADDITIONAL PREVALENCE INDICATORS

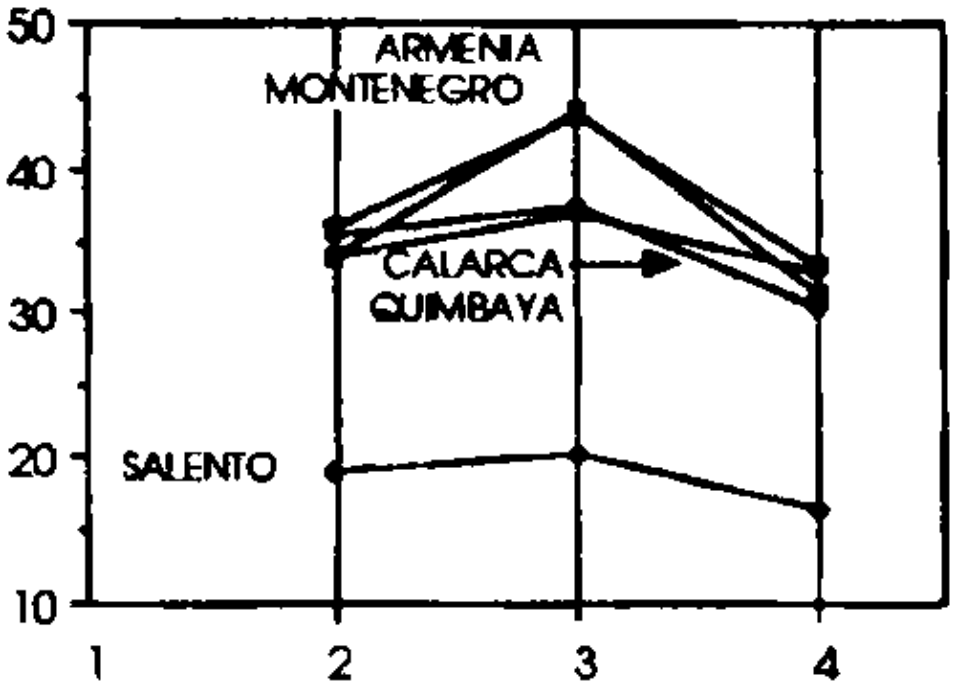


% PREVALENCE – Prevalence of underweight (<3rd. percentile Wt/Age) in children aged 6–35 months (1965 & '77), 3–35 months (1986)

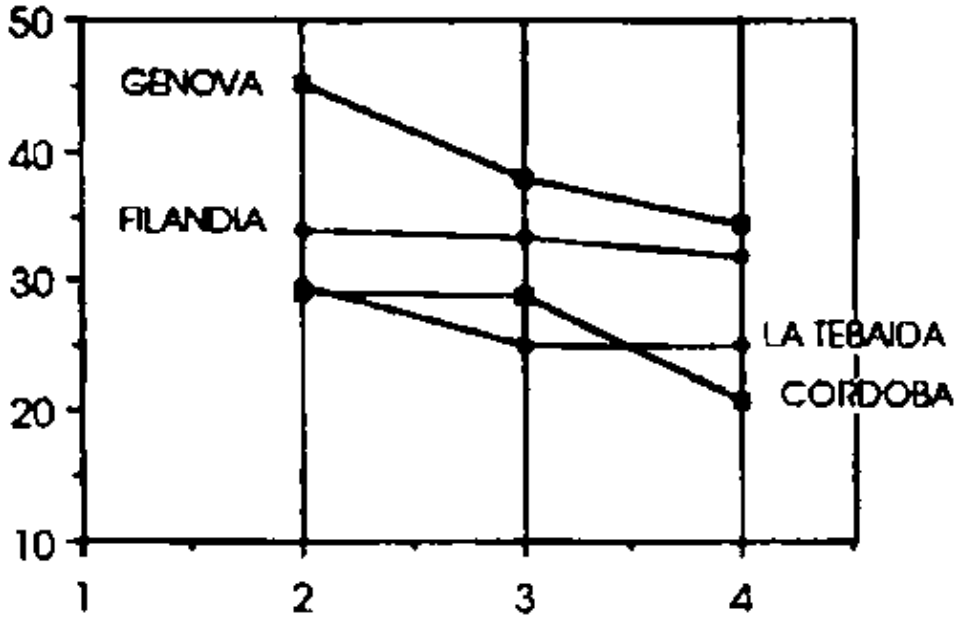


% PREVALENCE – Prevalence of stunting (<3rd. percentile Ht/Age) in children aged 6–35 months (1965 & '77), 3–35 months (1986)

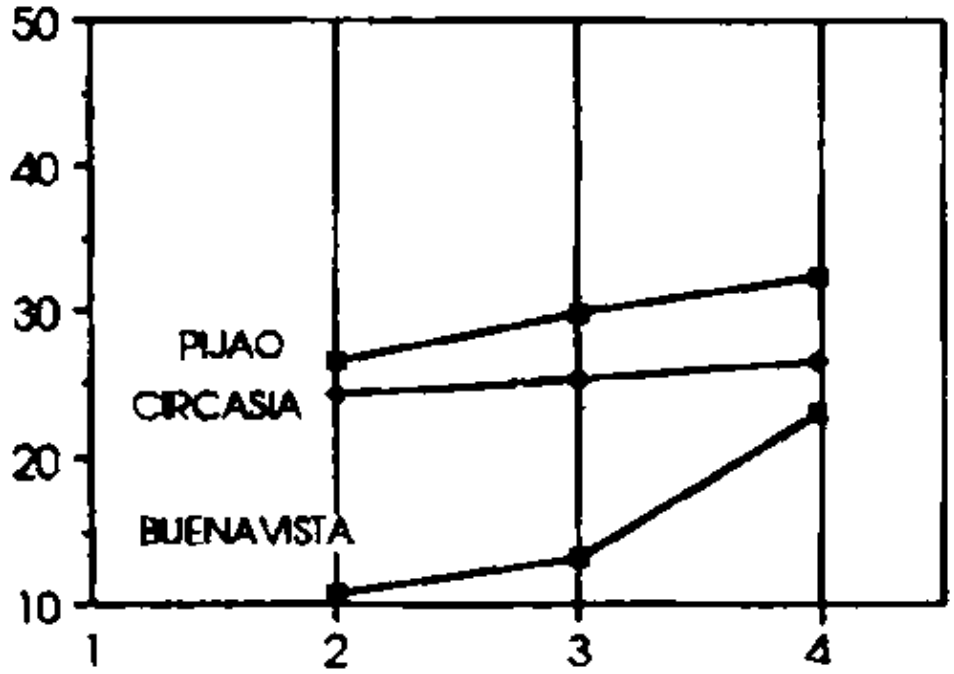
TRENDS IN QUARTERLY PREVALENCE OF UNDERWEIGHT



% PREVALENCE – Quarterly prevalence of underweight (<3rd. percentile Wt/Age) in children aged under 5 years in 12 municipalities (DEPTO DE QUINDIO) during 1987



% PREVALENCE – Quarterly prevalence of underweight (<3rd. percentile Wt/Age) in children aged under 5 years in 12 municipalities (DEPTO DE QUINDIO) during 1987



% PREVALENCE – Quarterly prevalence of underweight (<3rd. percentile Wt/Age) in children aged under 5 years in 12 municipalities (DEPTO DE QUINDIO) during 1987

Costa Rica

The Republic of Costa Rica occupies an area of 51,100 sq. km. and as of mid–1987 had a total population estimated at 2.8 million, and a population density of 52 persons/sq. km. Approximately half the population live in rural areas. The climate is tropical in the coastal lowlands, and temperate in the highlands. The rainy season is normally from May until October.

Political conditions have been quite stable during the 1980's. A community–based health service had been widely and successfully developed during the seventies which is considered to have contributed to sharply diminishing infant mortality rates (see Infant Mortality) and the lowering of the under 5 mortality rate to an estimated 23 per 1,000 live births in 1987.

When the new government took office in 1982 the two main issues it faced were a domestic economic crisis, and tensions arising from civil strife in the region. In 1986 the incoming president made a commitment to

increased social investment particularly in housing and employment–generation. However, some of this shift in emphasis in public expenditure came at the cost of reductions in other social programmes.

Agriculture

The agricultural sector generates approximately 20% of GDP and employs around 28% of the workforce. Expansion in total agricultural output was slow in the 1980's, at an annual rate of l%–2%. Total food production declined between 1980 and 1982, rose in 1984, but has fallen back again since (Food Production Index). In 1983, domestic cereal production and cereal imports increased significantly compared to pre–'83 levels, while the level of cereal aid was maintained. This resulted in sharply increased cereal availability at national level (Cereal Availability). Thereafter (especially since 1985), domestic cereal production, cereal imports, cereal aid, and consequently domestic cereal availability, all declined. Nevertheless, total food availability from all sources (as indicated by per capita Kcals) has been rising slowly since 1981 (see Kcals per day).

The Economy

In 1985 the government embarked on a programme of export promotion and import substitution. During the recent years, exports of coffee and sugar have increasingly contributed to foreign exchange earnings and a balanced trade account. The exchange rate of the colon with the dollar has only slightly declined after 1981 (Exchange Rate) when a sharp devaluation occurred. Foreign debts – outstanding and disbursed – show a steadily rising trend (Debt). The debt service ratio reached a very high value of over 0.5 – i.e. more than 50% of foreign exchange earnings being used to service the debt in 1983; and although lower in 1984 and '85, it remained very high.

In 1983 and again in 1985, Costa Rica rescheduled its foreign debt, and in 1983 and 1986 re–negotiated private bank loans.

Modest economic growth took place during the period 1981–1982. There was a sharp decline in GNP in 1981 and only in 1983 had recovery begun (GNP). Under– and un–employment fell slightly between 1982 and 1984. The effects of inflation in the early 1980's is shown by the fact that the percent of low–income households (50% or more of household income required for food) increased from 40% in 1980 to 60% in 1982, with a significantly higher percentage amongst rural households. This percentage was lowered again to 37% in 1985, when inflation was largely brought more under control.

The consumer price index increased rapidly during the period 1980–87; up to the end of 1982, food prices tended to increase faster than general consumer prices, this trend being reversed after 1982 (see FPI, CPI & FPI/CPI). Between 1982 and 1986, real earnings increased on the average by 3.2% per year. The percent of the minimum wage that the average household had to assign to cover the cost of the basic food basket increased from an estimated 76% in 1980 to 117% in 1982, and fell back to 89% in 1983–84 (Additional Nutrition Indicators). In 1982, 62% of all households did not meet their estimated daily energy requirements, although per capita daily energy supply had increased until 1986 (Kcals per day).

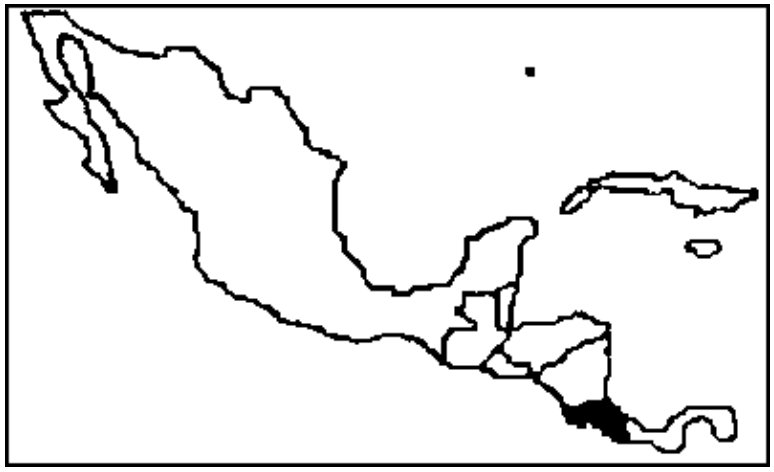
Nutrition

Nutrition conditions show evidence of a substantial improvement since the sixties, in spite of the economic pressures experienced especially in the 1980's. Among pre–school children the prevalence rates of weight deficiency and growth retardation decreased from 13.7% and 24.1% in 1966 to 5.3% and 6.4% in 1982, respectively (Underweight & Stunted). Prevalence of weight deficiency in preschool children was further reduced in 1987 to 2.1%–2.7%, while the prevalence of overweight appears to range between 5.1% and 6.9%. Reduced growth retardation in school–age children is also evident, as the prevalence rates decreased from 20.4% in 1979, 15.4% in 1981, 12.7% in 1983 to 11.3% in 1985.

Urban versus rural differences remain, although less pronounced in 1982 than in 1978 (Additional Nutrition–Related Indicators).

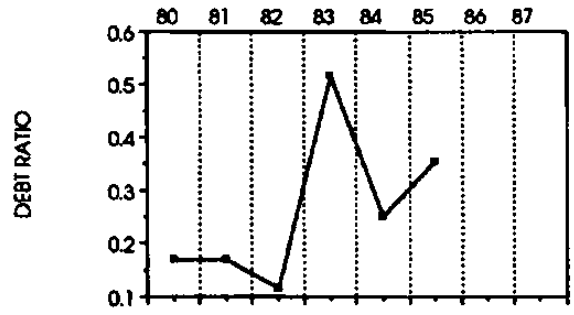
Problems of under– and over–nutrition also affect the adult population. In 1982, 23% of males and 18% of females were found to be undernourished (< 20 Body Mass Index), but 22% of the males and 38% of the females suffered from some degree of obesity (> 25 Body Mass Index).

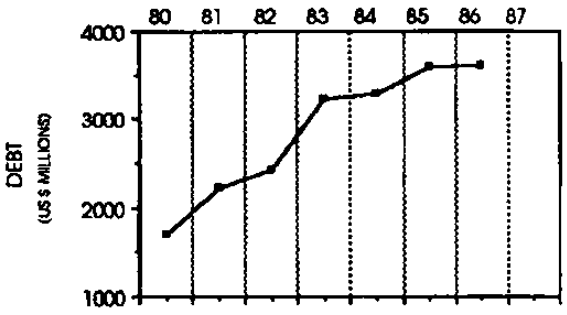
COSTA RICA

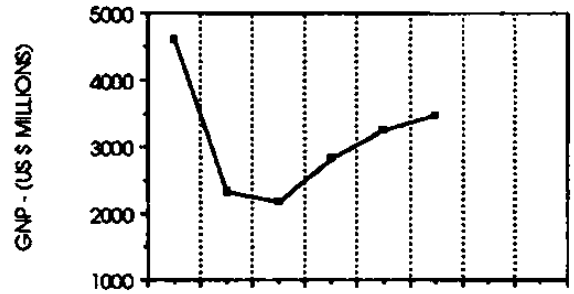


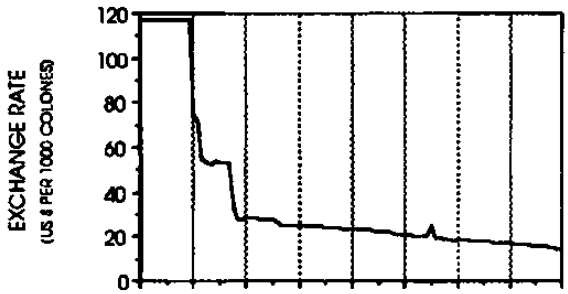
POPULATION: 2.8 M	IMR: 18
POPULATION DENSITY: 52 per sq. km.	U5MR: 23
POP. GROWTH RATE: 2.4% per annum	GNP (PER CAPITA): US$1,480
PERCENTAGE URBAN POP.: 51%	ESTIMATED PREVALENCE LEVEL UNDERWEIGHT CHILDREN: 5% – 15%

ECONOMIC INDICATORS

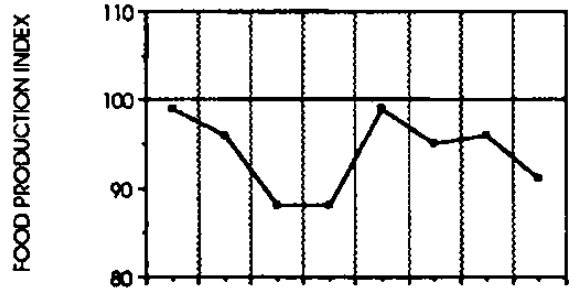


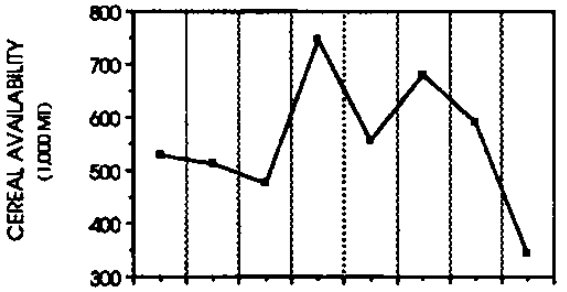


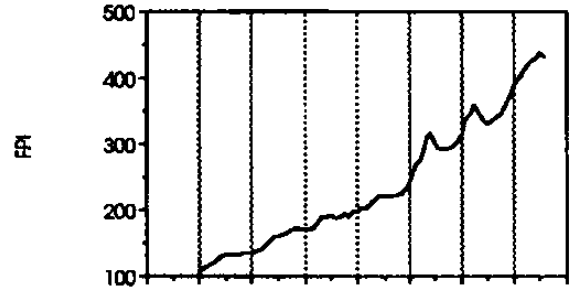


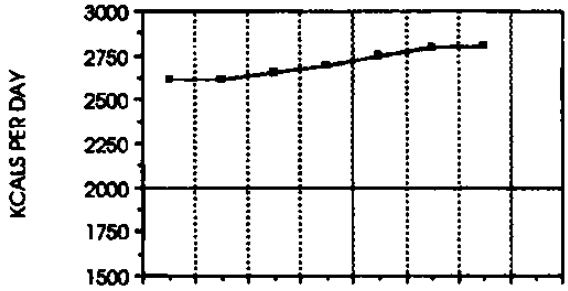


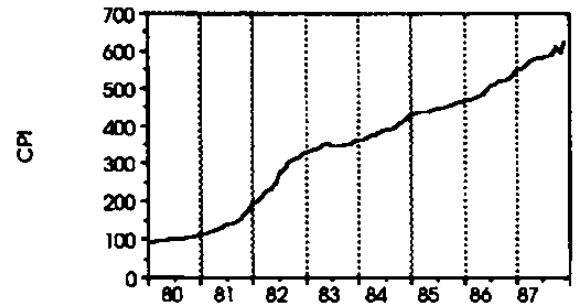
FOOD INDICATORS

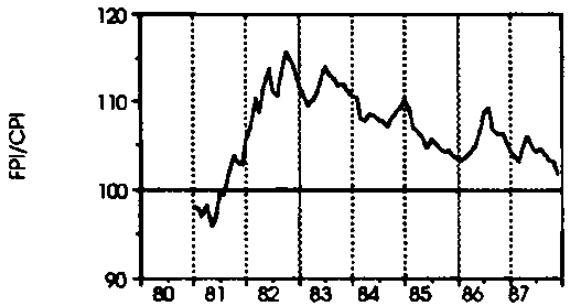




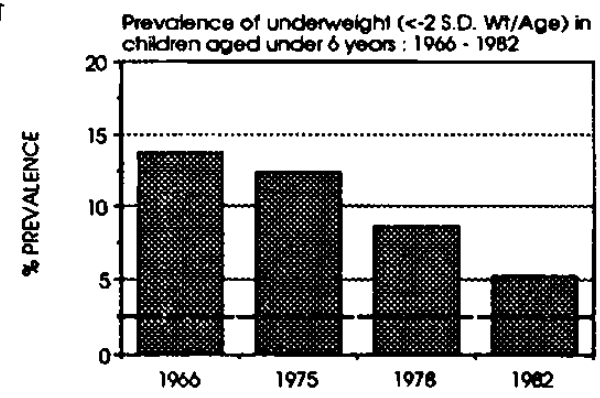


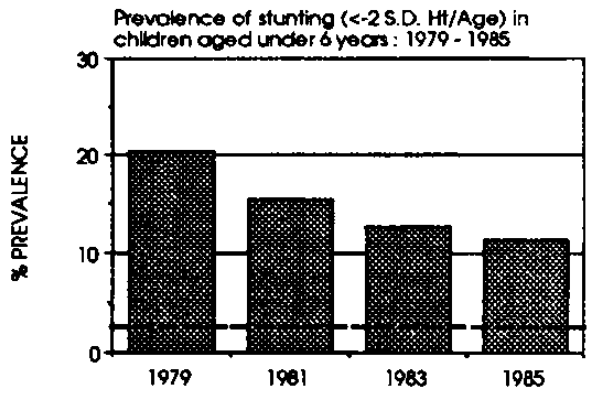




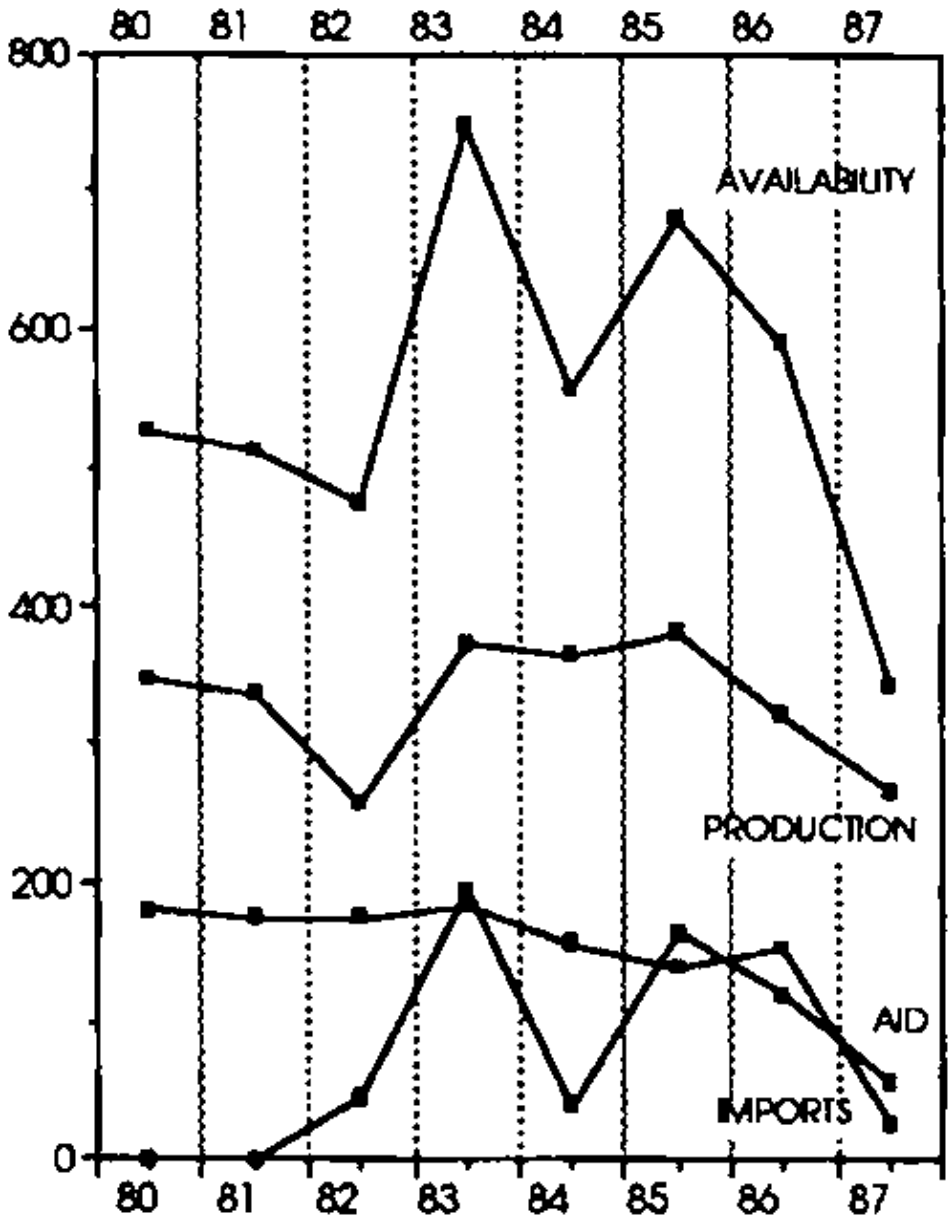


UNDERWEIGHT AND STUNTED CHILDREN

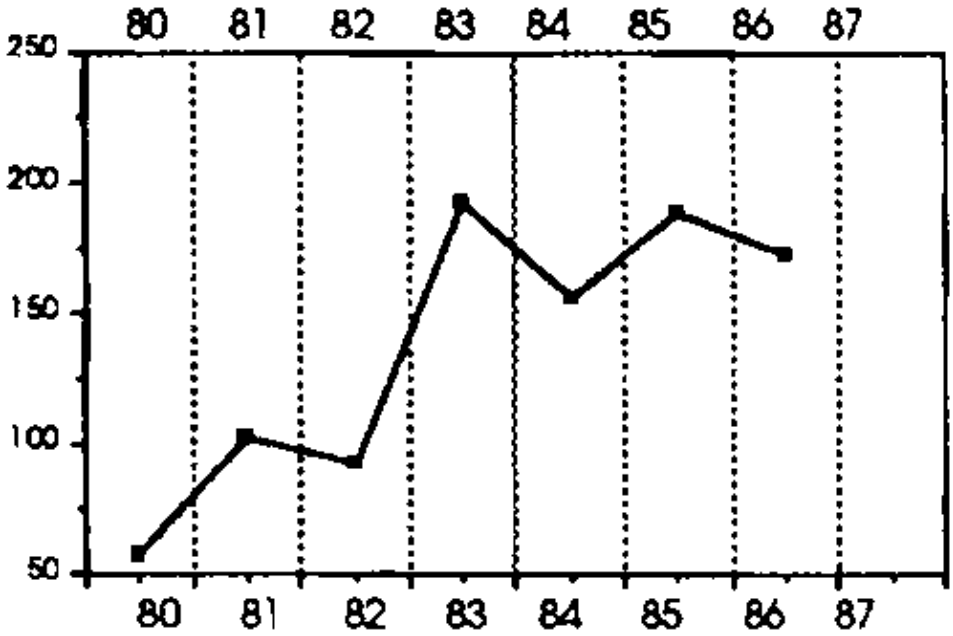




GRAPHICS

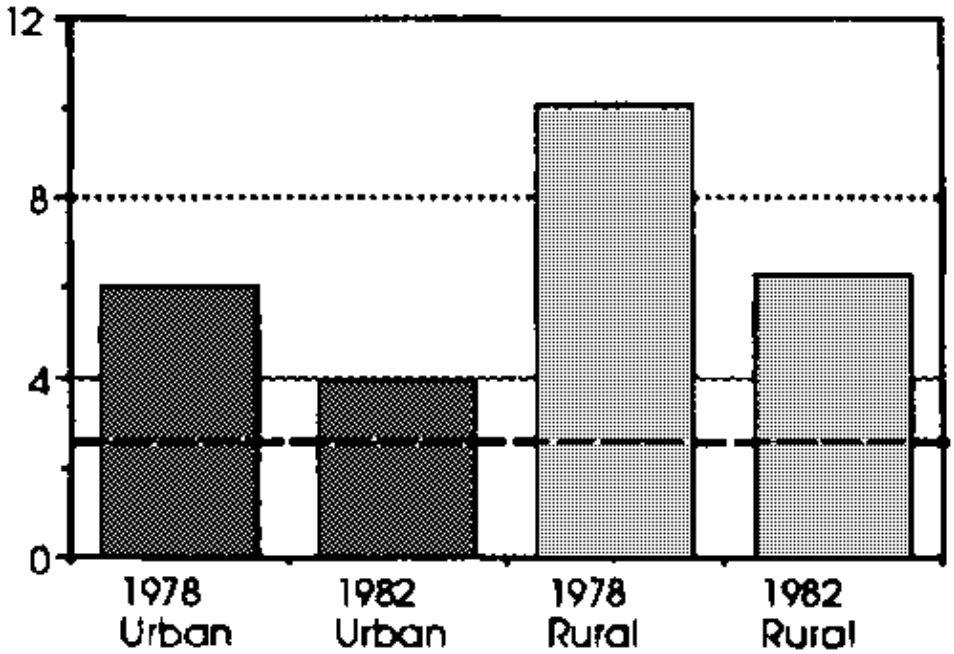


CEREALS (1,000 MT)

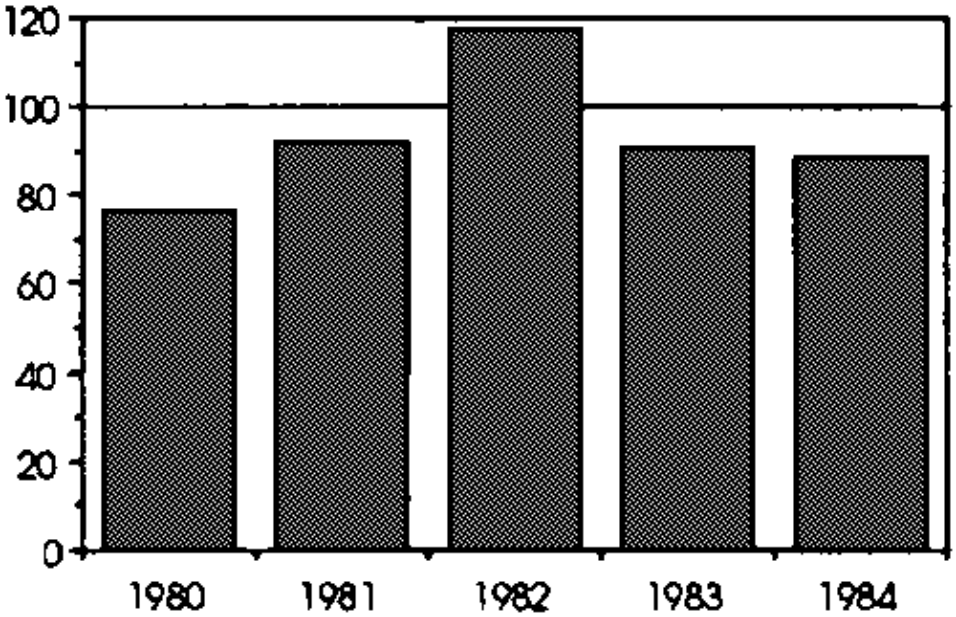


IMF CREDIT (US $ MILLIONS)

ADDITIONAL NUTRITION–RELATED INDICATORS

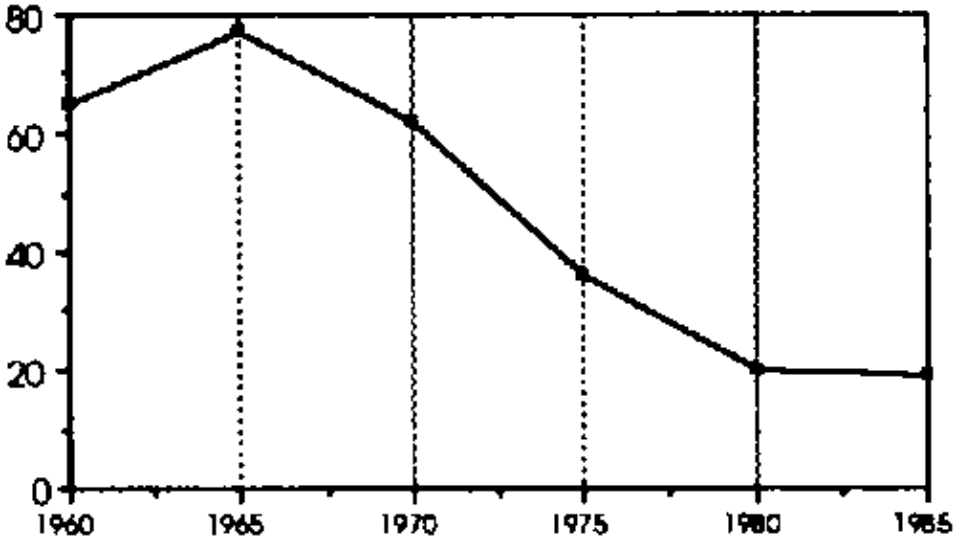


% PREVALENCE – Prevalence of underweight (<–2 S.D. Wt/Age) in children aged under 6 years. Urban v. Rural



% SALARY – Percentage of minimum salary required to purchase a basic food basket for the average family: 1980–'84

INFANT MORTALITY



INFANT MORTALITY RATE – Infant mortality rate between 1960 – 1985

Cuba

The Republic of Cuba has a total area of 110,860 sq. km. and a population estimated in mid–1987 at 10.1 million, with a very low average annual rate of growth –0.9%; population density is 92 persons/sq. km. The climate is tropical, tempered by sea breezes. Cuba is subjected to destructive tropical storms periodically. During recent years, Cuba has been suffering from drought conditions, which were particularly serious in 1985.

The development of social and health services has long been a priority in Cuba. Reduction in infant mortality and in the prevalence of low birth weight show how effective such policies have been (see Infant Mortality & Low Birth Weight). The latest available statistics indicate that the level of these indicators is now comparable to that found in the developed world.

The Economy

During the period 1981–86, global social product in real terms increased at an average annual rate of 5.6%, with a high of 12% in 1981 and a low of 1.7% in 1986. Economic growth in Cuba is heavily dependent on

foreign exchange earnings from sugar exports, and the annual variation in the economic growth rate is associated with variation in sugar prices on world markets. Export diversification, and raising social production and labour productivity were stressed in the second five−year plan (1981−85), together with economic de−centralization, deregulation of prices and subsidies, and the introduction of new commercial incentives. Under the current five year plan, additional efforts are to be focussed on the expansion of export capacity (except of sugar), diversification of manufacturing based upon the availability of local resources, and substitution of energy sources.

During the period 1981−85, 23.3% of total investments went to the agricultural sector, where infrastructure in the form of irrigation, cold storage, animal breeding facilities, rural roads, etc., was significantly improved as a result. The food processing industry expanded at an average annual rate of 6.1% during this period. The fishing industry also expanded, and fish products contributed to export development as did citrus fruits. The land area under irrigation increased five−fold. Rice yields were up, leading to a 14% increase in total rice production. Significant increases in the production of milk, eggs, fowl, pork, honey, citrus fruits and vegetables were achieved.

Social investment in health and educational facilities, and in housing and in electrification took place, and 630,000 new jobs were created. Expenditure on social programmes was 33% higher in 1985 than in 1980; these programmes cover approximately a tenth of the population.

Agriculture

The average national food intake pattern shows a strong emphasis on animal products. The annual per capita intake (1984−86) of milk and milk products was −152.6 kg.; eggs − 245 kg., while the cereal intake was − 112.1 kg., meat − 80.3 kg.; fresh fruit − 57.7 kg, vegetables − 58.3 kg. Average daily energy availability has been rising steadily since 1981 (Kcals per day) and current protein intake was estimated at 79.6 grams per person per day.

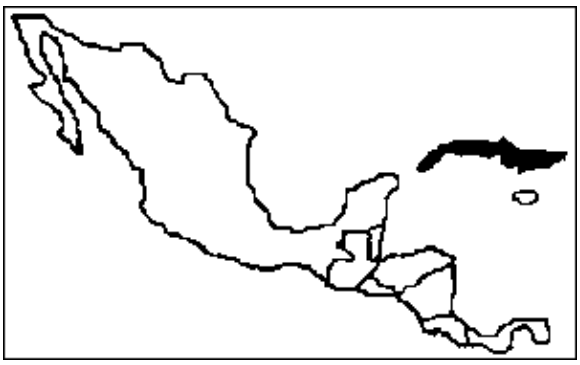
Food production rose between 1980 and 1982 and dipped in 1983. Following a peak in 1984, the production index has fallen since; the 1987 figure is comparable to the 1980 level (Food Production Index). Cereal availability has reflected the annual pattern in production as imports have remained fairly constant (Cereals: Availability, Production & Imports). Cereal output for 1988 was estimated to be some 13% higher than in 1987, following adequate rainfall during the growing season.

Nutrition

Nutritional surveillance data for the period 1984−87 show that in young children overweight and obesity represent a relatively more serious problem than weight deficiency (Wasted & Obese). Undernutrition no longer represents a serious public health problem although the weight for height indicator alone does not reveal information about chronic malnutrition conditions.

Much the same applies to school children. In 1986, 3.7% of primary school children were found to be undernourished or underweight, and 23.5% overweight or obese (Additional Nutrition−Related Indicators). Among secondary school children these percentages were 5.6% and 15.9%, respectively.

CUBA



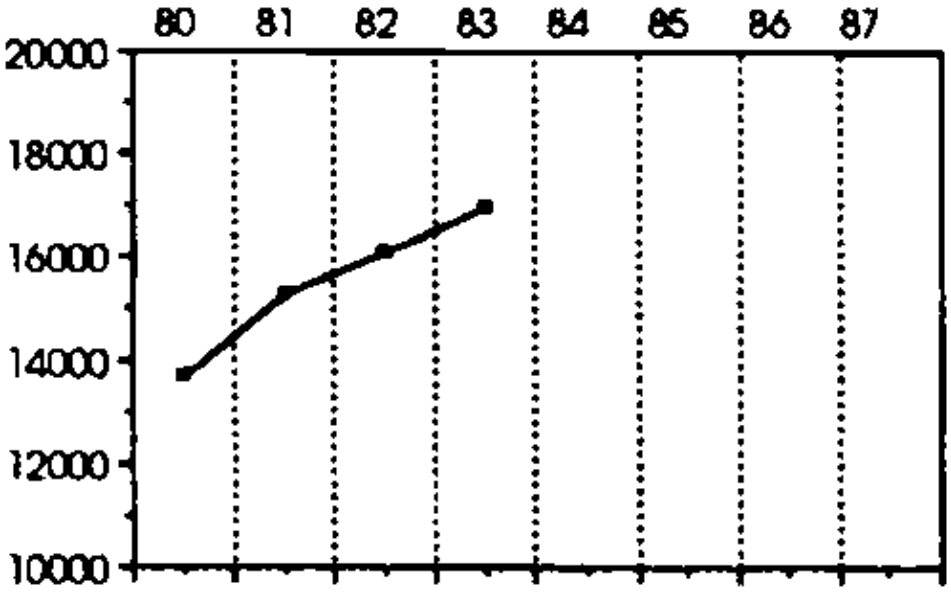
POPULATION: 10.1 M IMR: 15

POPULATION DENSITY: 92 per sq. km.	U5MR: 19
POP. GROWTH RATE: 0.9% per annum	GNP (PER CAPITA): –
PERCENTAGE URBAN POP.: 73%	ESTIMATED PREVALENCE LEVEL UNDERWEIGHT CHILDREN: 0 – 10%

ECONOMIC INDICATORS

DEBT RATIO – NOT AVAILABLE

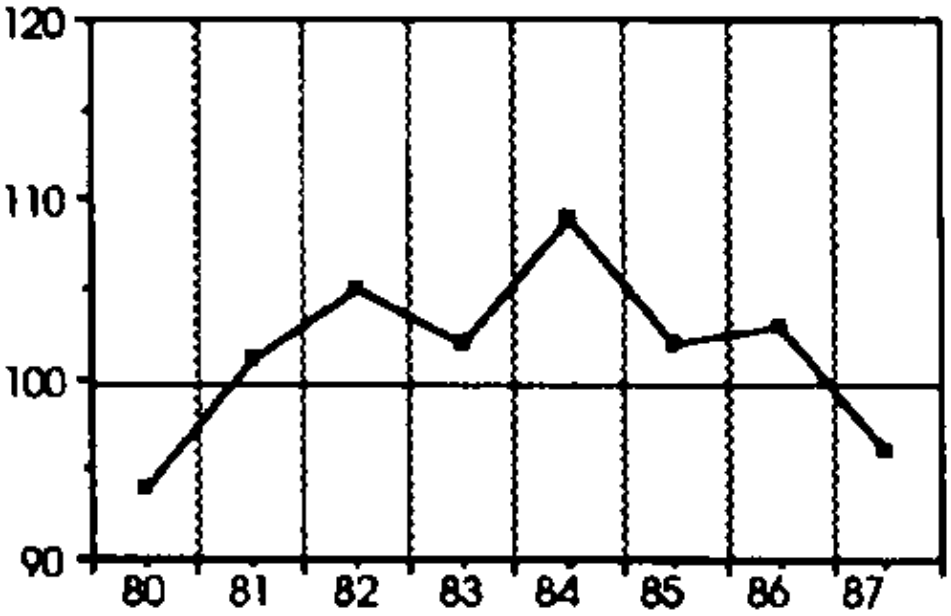
DEBT – NOT AVAILABLE



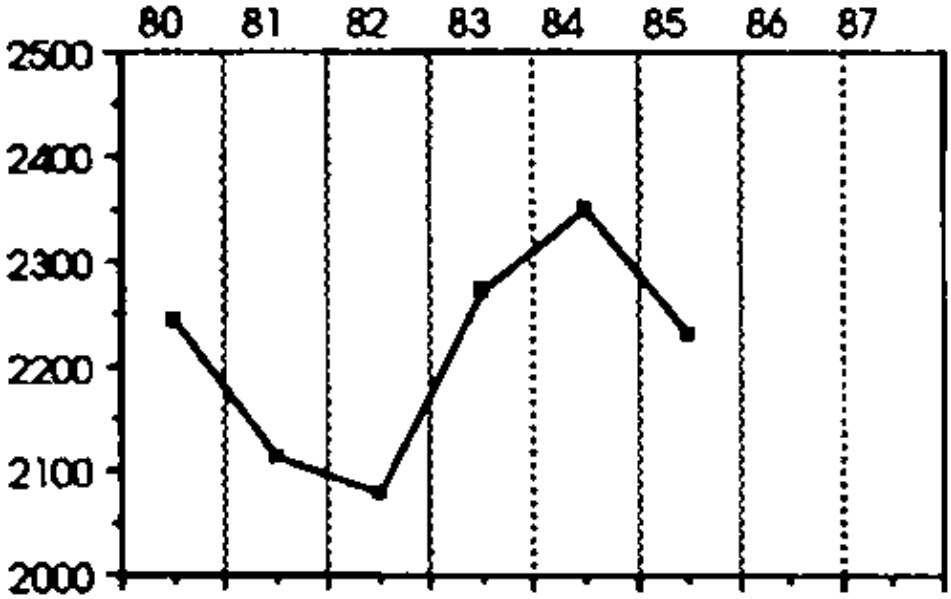
GDP – (US $ MILLIONS)

EXCHANGE RATE – NOT AVAILABLE

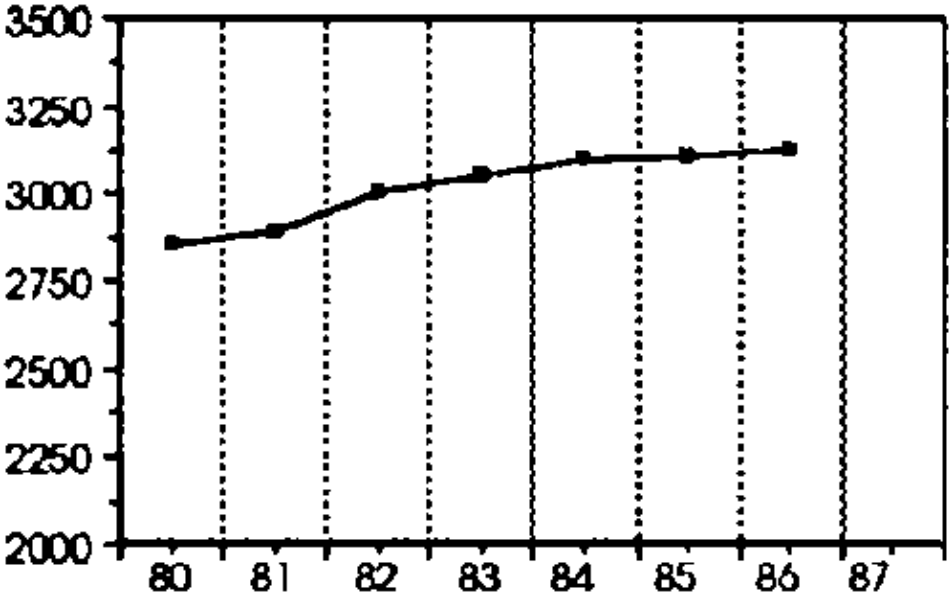
FOOD INDICATORS



FOOD PRODUCTION INDEX



CEREAL AVAILABILITY (1,000 MT)

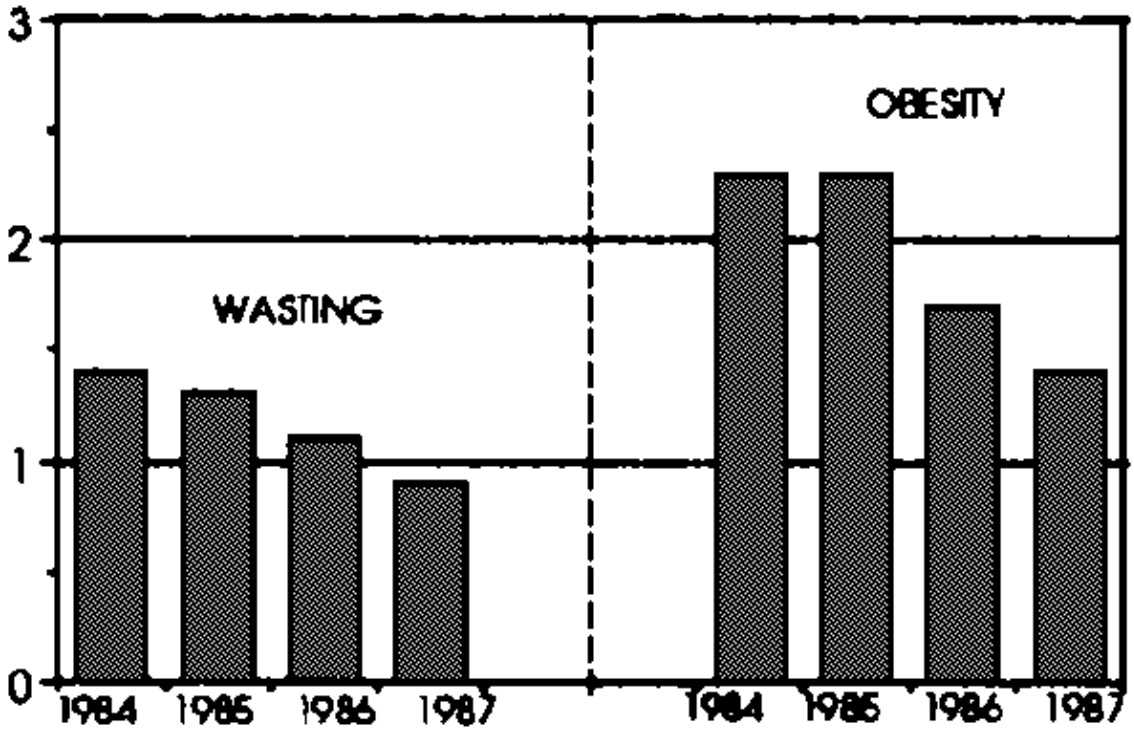


KCALS PER DAY

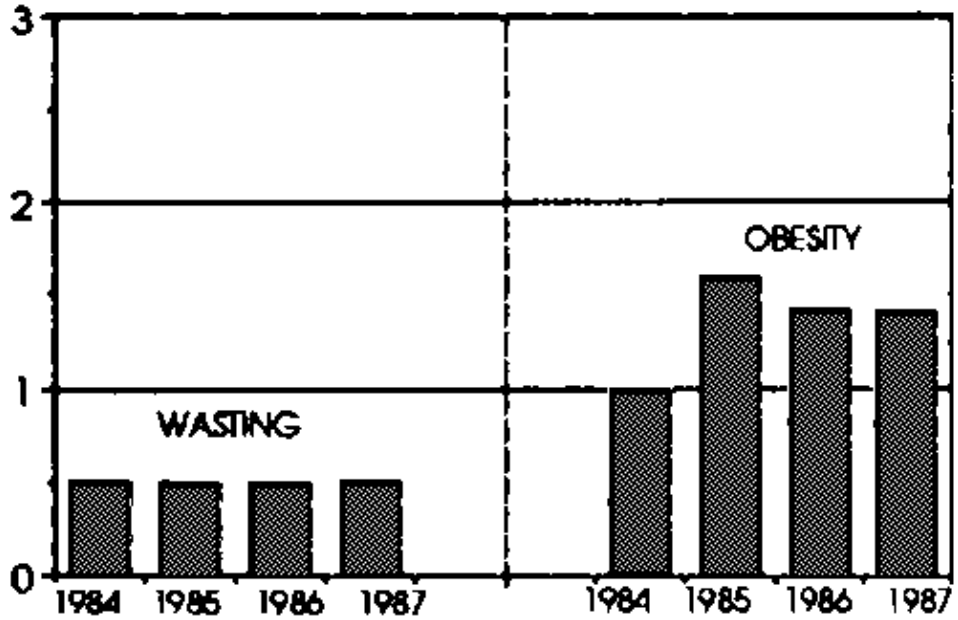
CPI – NOT AVAILABLE

FPI/CPI – NOT AVAILABLE

WASTED AND OBESE CHILDREN

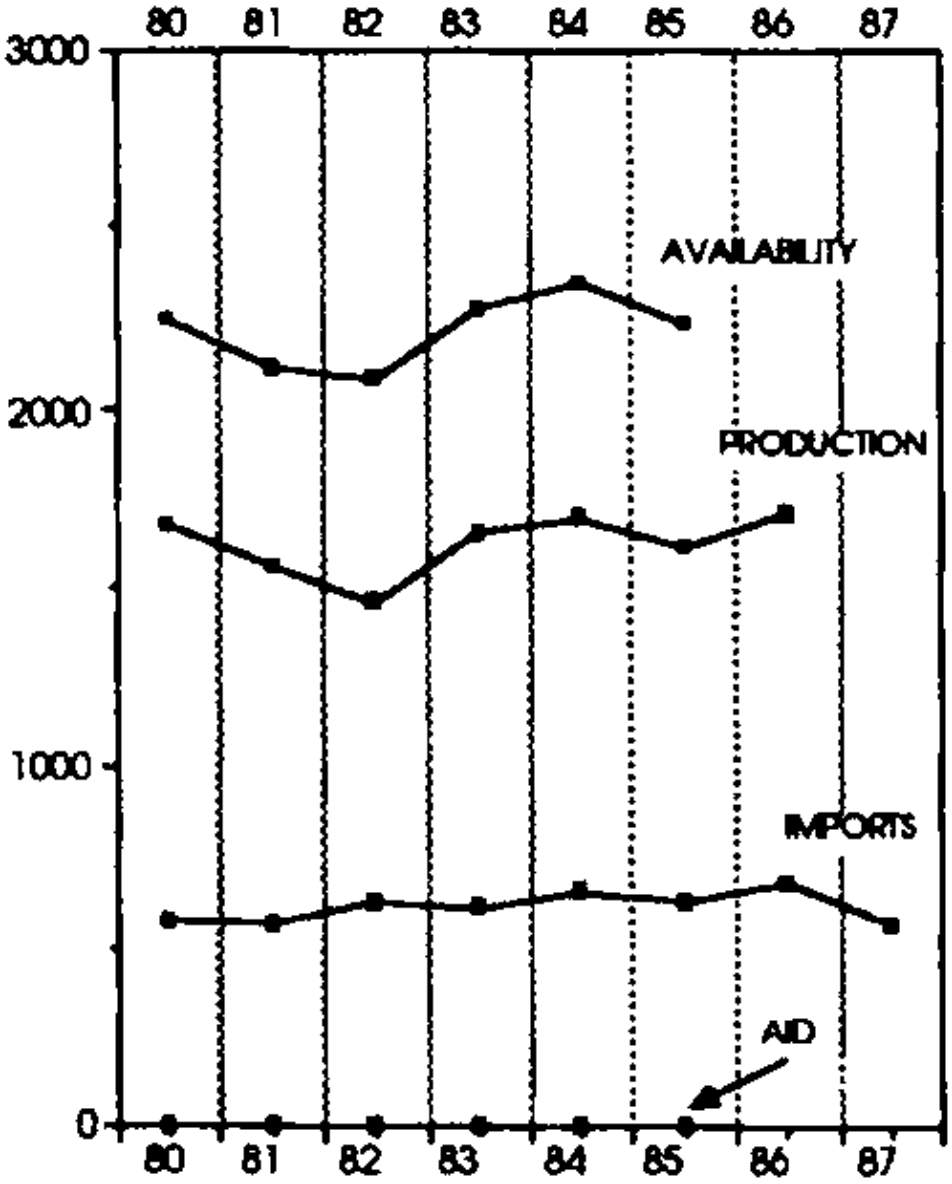


% PREVALENCE – Prevalence of wasting (<3rd. Percentile Wt/Ht, Cuban Standards) and obesity (>97th. Percentile Wt/Ht) in children aged under 1 year. Health Centre data.



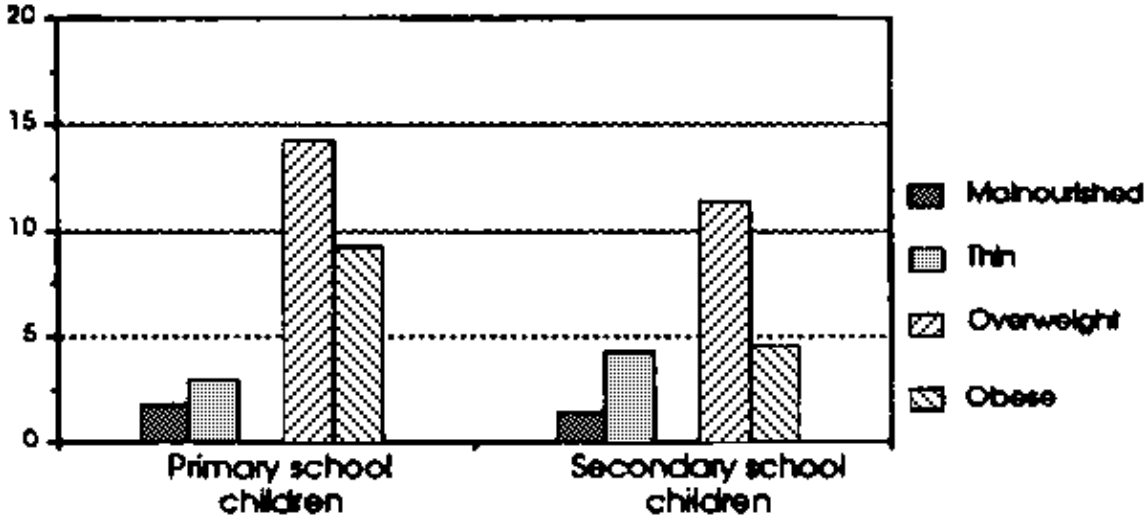
% PREVALENCE – Prevalence of wasting (<3rd. Percentile Wt/Ht, Cuban Standards) and obesity (>97th. Percentile Wt/Ht) in children aged 1–4 year. Health Centre data.

ADDITIONAL FOOD & ECONOMIC INDICATORS

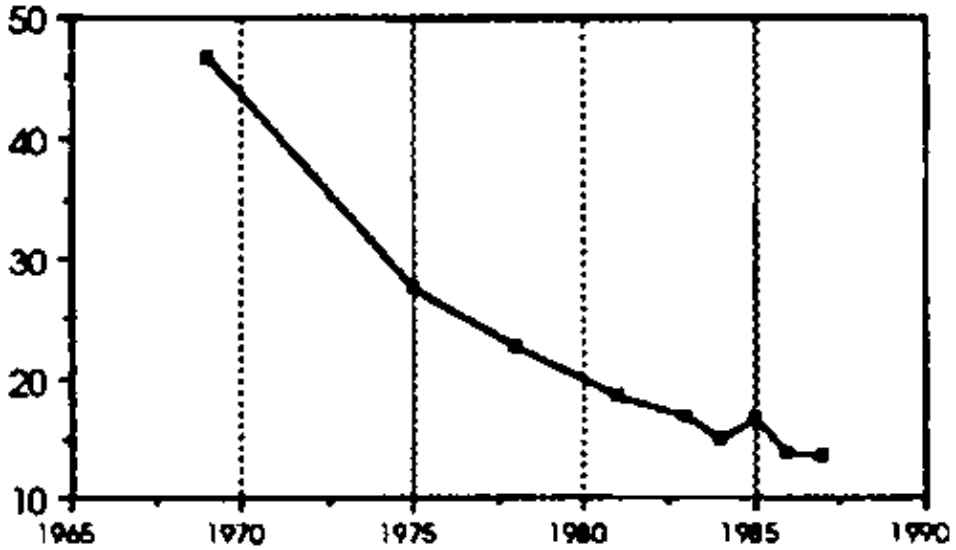


CEREALS (1,000 MT)

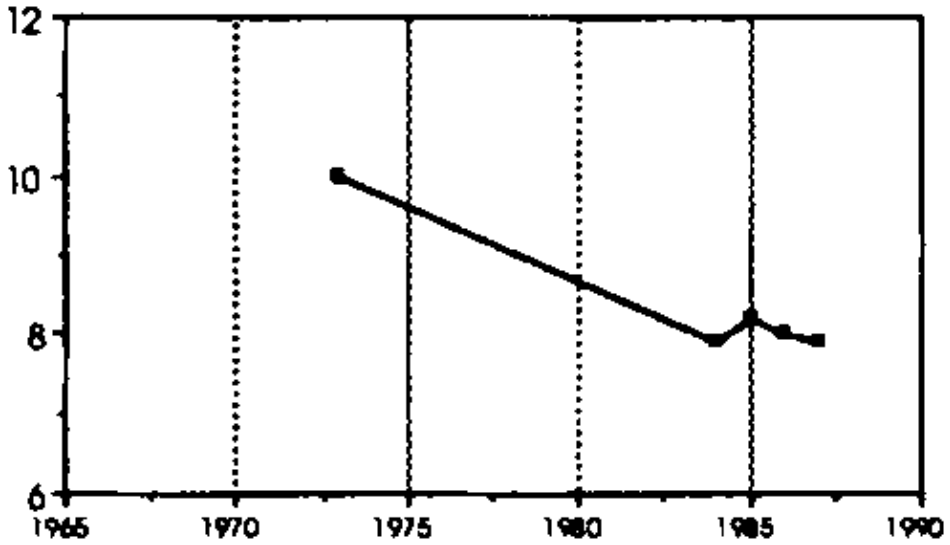
ADDITIONAL NUTRITION–RELATED INDICATORS



% PREVALENCE – Prevalence of above or below normal weight–for–height in school–children during 1986; Cuban classification. Health Centre data.



INFANT MORTALITY RATE – Reduction in Infant Mortality Rate between 1969 to 1987



% PREVALENCE – Reduction in Low Birth Weight (<2.500 gms) incidence between 1973 and 1987

Guatemala

The Republic of Guatemala has a total area of 108,889 sq. km., and a total population estimated at 8.4 million in 1987. The population density is approximately 77 persons per sq. km. Thirty–two percent of the population lives in urban areas, and forty–three percent of the total population is indigenous, of whom over eighty percent live in rural areas. The climate is predominantly tropical in the coastal lowlands, but temperate in the highlands. The rainy season is normally from May to October.

In the early part of the 1980's Guatemala had a number of different regimes and experienced a significant level of violence and internal unrest. In 1984 elections were held for an Assembly which eventually drafted a new constitution and electoral laws for the 1985 presidential elections. Since then Guatemala's political isolation has been reduced and financial aid from the US and Europe has increased. Unemployment and inflation are presently rising.

Agriculture

The agricultural sector generates approximately 25% of gross domestic product and absorbs about 50% of the economically active population. Total agricultural production has shown no growth since 1982. After an initial increase during 1980–'82, food production has steadily declined (see Food Production Index). During 1980–82, total cereal production rose while cereal imports fell (Cereals: Production). Total cereal production, cereal imports and cereal aid all peaked in 1986, but the first two dropped sharply in 1987. Cereals contributed 65% of the average daily energy supply in 1986.

The drop in cereals imported in 1987 may be partly due to the devaluation of the quetzale in late 1986 (Exchange Rate). Total food availability (as Kcals per day) changed little over the period from 1980 to 1986.

Drought affected the development of the first season cereal crops early in 1988; torrential rains and flooding caused damage to the second season crops in September.

The Economy

Falling international prices for Guatemala's primary exports have reduced import capacity during 1980–85. The high cost of external debt servicing (Debt Ratio), reduced foreign exchange earnings and capital flight, were somewhat mitigated by increased use of IMF credit during 1980–84 (IMF). Guatemala's foreign debt has been steadily rising (Debt); a partial debt rescheduling in 1986, resulted in debt–servicing costs of about 40% of export revenues.

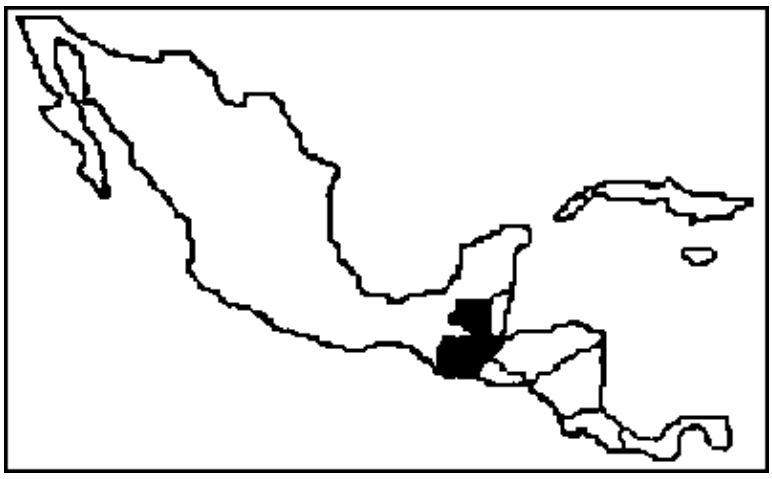
The Guatemalan economy was chronically recessive during 1980–85; the average annual decline in real GNP was significant (GNP). In 1986–87 only 37% of the economically active population was estimated to be fully employed, and 57% underemployed to various degrees. The annual rate of inflation, based upon the consumer price index, increased from 0.2% in 1982 to 37% in 1986, and the annual change in real earnings from 6% to –18% over the same period. During 1980–83 food prices increased faster than the general consumer price index, but this trend was substantially reversed in 1984 (FPI/CPI).

Nutrition

Nutrition conditions do not seem to be improving in Guatemala in so far as the available studies, which are not strictly comparable, would indicate. In 1965, 36.5% of rural pre–school children were found to be weight deficient and 60% to suffer from growth retardation. By 1980 these percentages were found to be 43.6% and 59.7%, respectively, and by 1987 33.5% and 57.8% (children between 3 and 36 months only), respectively (Underweight & Stunted).

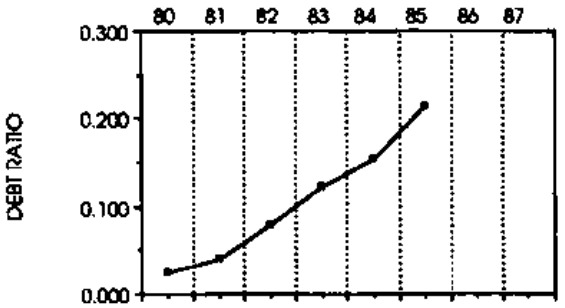
Undernutrition affects relatively more rural and indigenous populations, and tends to be more prevalent in the Northern, Central and South–Western regions of the country (Additional Prevalence Indicators). Among school–children (6–9 years old), 37.4% were found to be suffering from growth retardation in 1986.

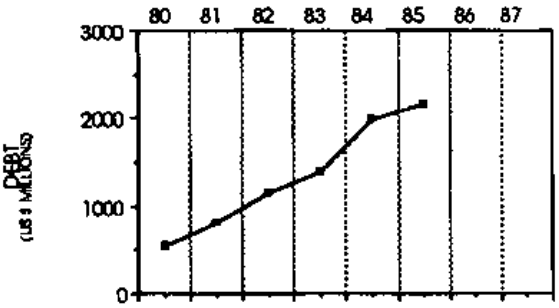
GUATEMALA

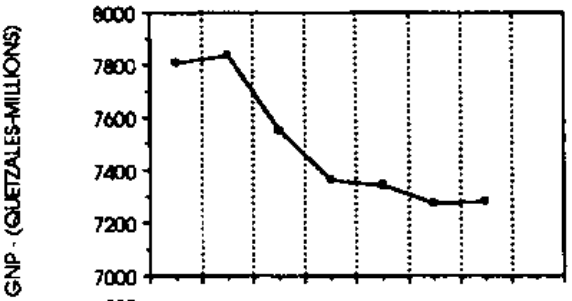


POPULATION: 8.4 M	IMR: 60
POPULATION DENSITY: 77 per sq. km.	U5MR: 103
POP. GROWTH RATE: 2.9% per annum	GNP (PER CAPITA): US$930
PERCENTAGE URBAN POP.: 41%	ESTIMATED PREVALENCE LEVEL UNDERWEIGHT CHILDREN: 15% – 25%

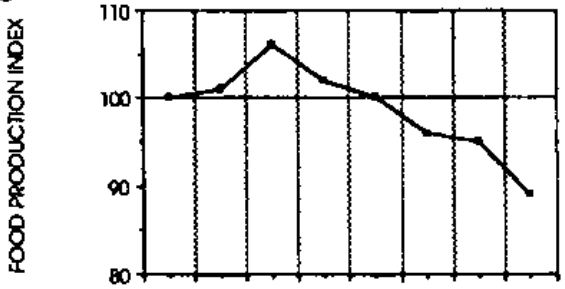
ECONOMIC INDICATORS

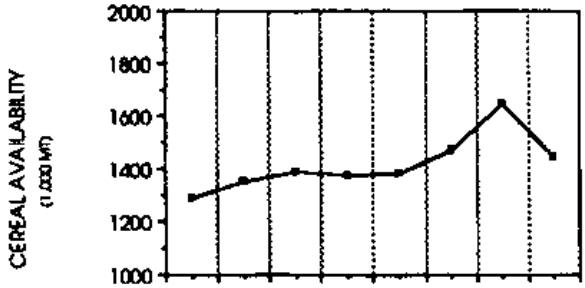


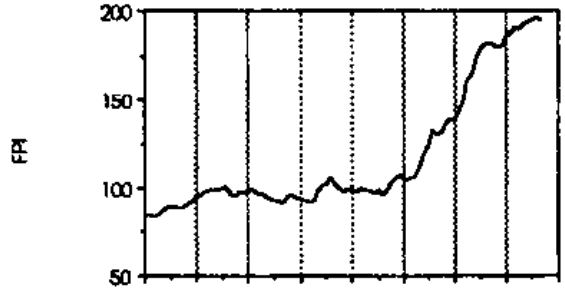


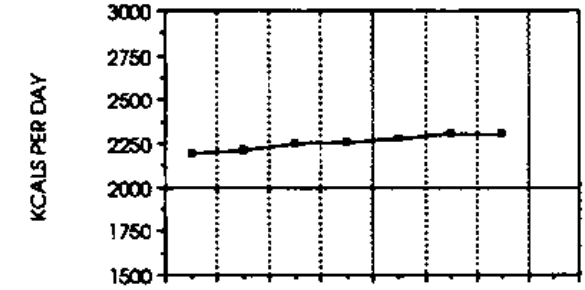


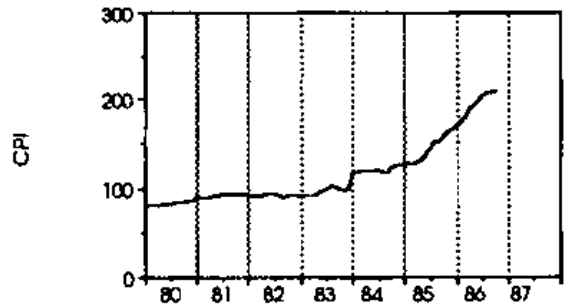
FOOD INDICATORS

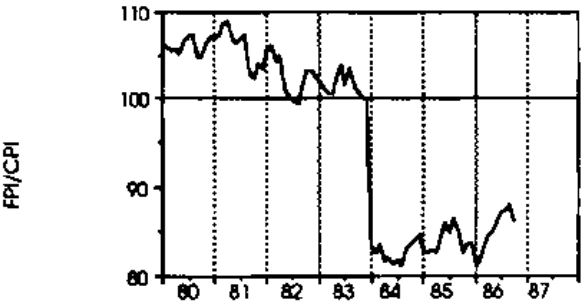




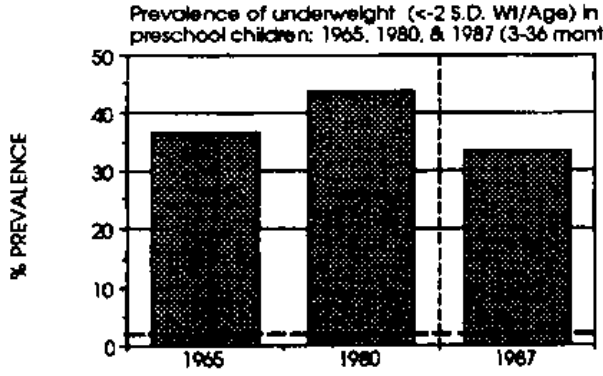


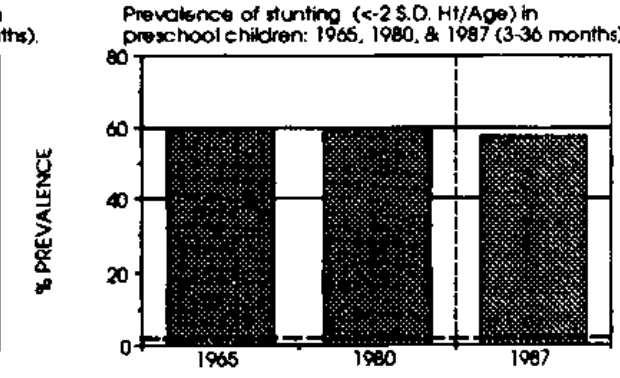




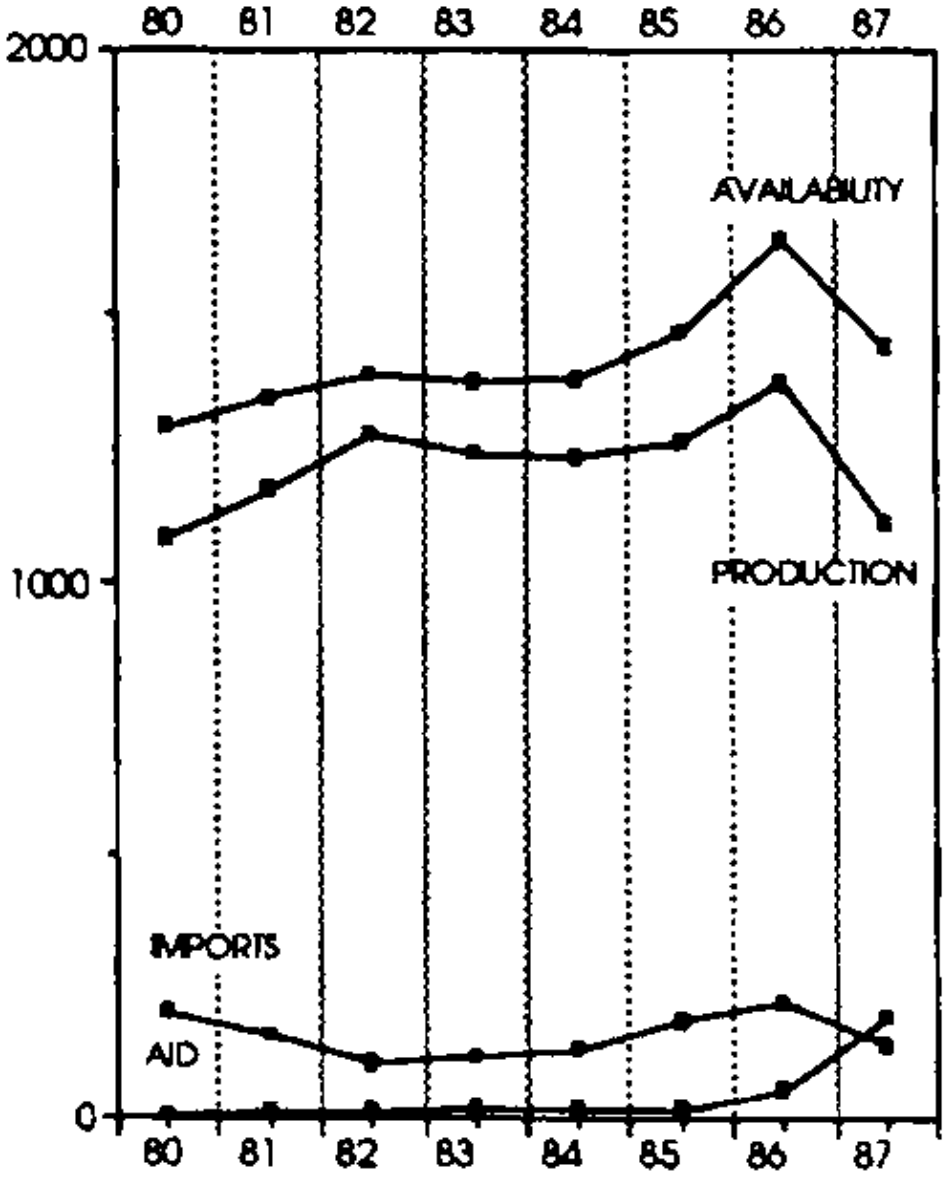


UNDERWEIGHT AND STUNTED CHILDREN

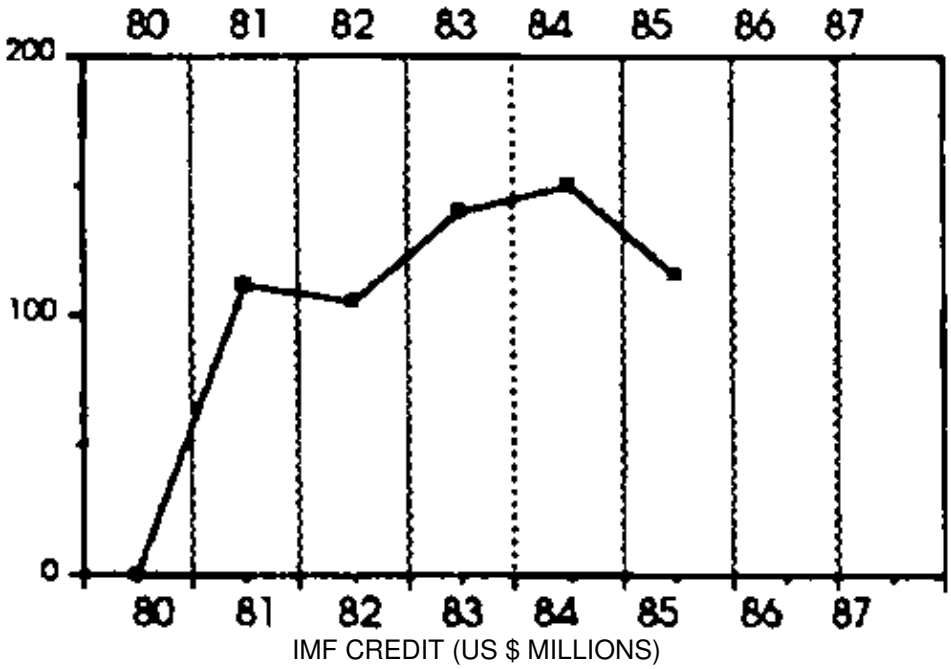




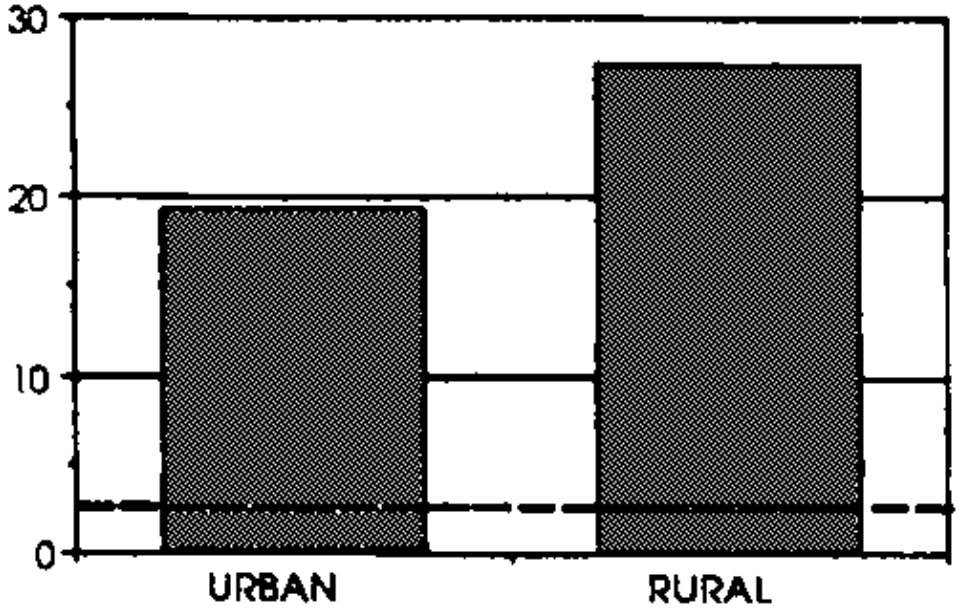
GRAPHICS



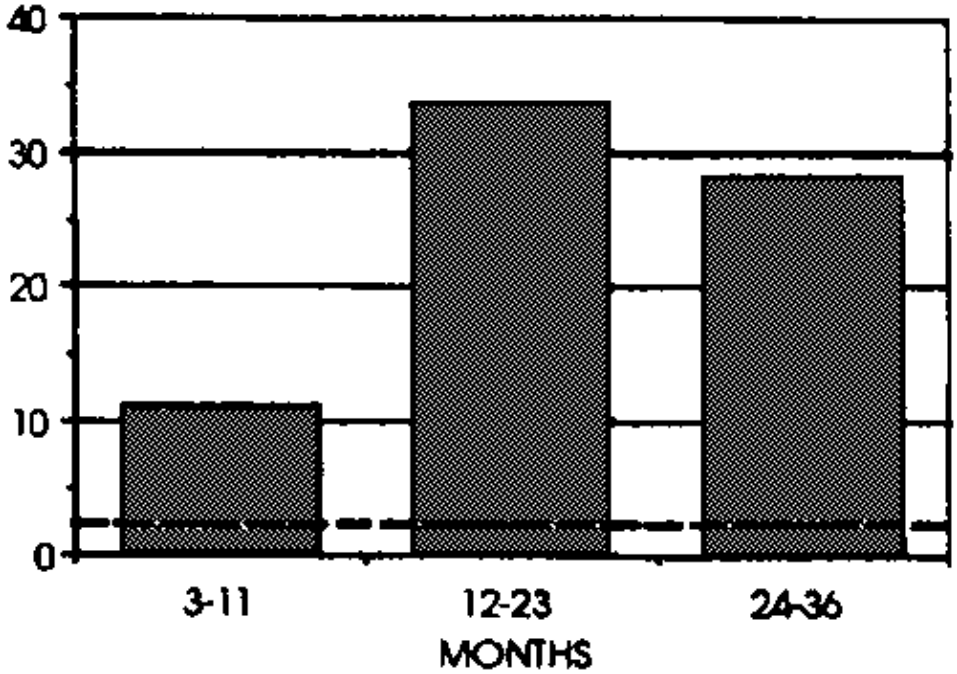
CEREALS (1,000 MT)



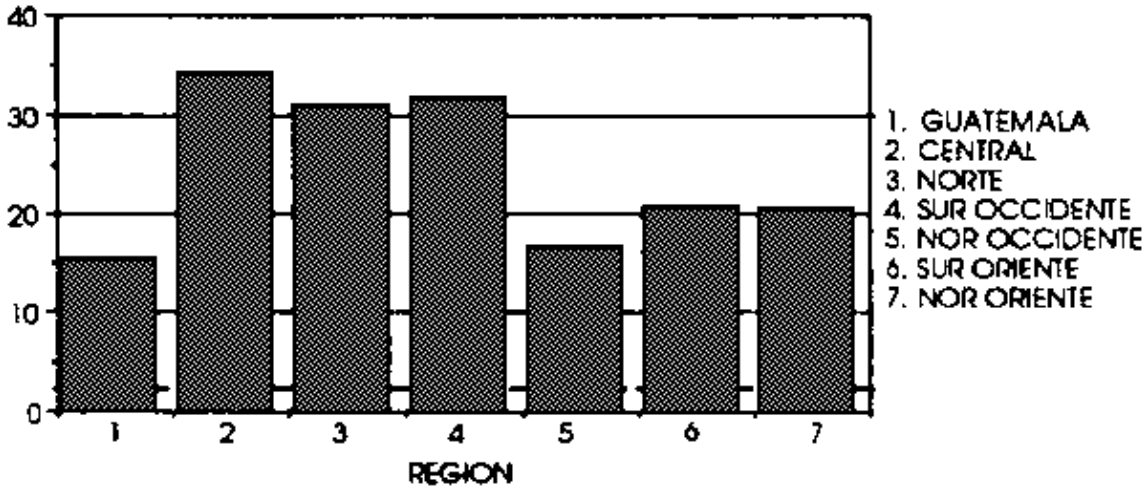
IMF CREDIT (US $ MILLIONS)



% PREVALENCE – Prevalence of underweight (<–2 S.D. Wt/Age) in children aged 3–36 months. Urban v. Rural 1987



% PREVALENCE – Prevalence of underweight (<–2 S.D. Wt/Age) in children by age group. 1987



% PREVALENCE – Prevalence of underweight (<–2 S.D. Wt/Age) in children aged 3–36 months by region. 1987

Jamaica

With an area of 10,900 sq. kilometres, Jamaica is the third largest Caribbean island. This former British colony gained independence in 1962. Amongst the Commonwealth countries in the Caribbean, Jamaica has the most diversified economy. There is a significant dependence on bauxite and alumina exports and tourism. Agricultural products are mainly sugar and banana.

Rapid growth occurred in the 1960's and early 70's, followed by a decline in the post–oil crisis recession. Mainly due to the rise in the price of oil, but also because of other internal inflationary factors, a cumulative fall of 16% in real GDP was experienced between 1974 and 1980. Consumer prices increased by over 28% in 1980. Significant aid from the IMF and the USA together with Government strategies for increased export of manufactured goods, import substitution, private sector investment and promotion of the tourist industry, all helped to achieve a real economic growth rate of 1.8% in 1981. This trend of slow recovery continued until 1983. An average growth rate of 1.7% was achieved during this period. The rates of unemployment and inflation were reduced by 1.5% and over 23%, respectively, in 1981. While the inflation rate fell to 6.5% in 1982, it rose again to 16.7% in 1983 and to as high as 31.2% in 1984. Inflation was subsequently reduced to 25.7% and 15.1% in '85 and '86, respectively. 1984 and 1985 witnessed declines in GNP due to external as well as internal factors (see GNP). In 1985, emigration increased by about 28% over the figure for 1984.

The agricultural sector – while high on the Government's list of priorities – has long experienced major problems. Substantial declines in food production (Food Production Index) since 1979 resulted in increased imports. Production of the most important export crop, sugar, had steadily declined to less than 200,000 metric tons a year in the last five years (compared to 508,000 tons in 1965) in spite of market opportunities.

Disease, poor tillage practices, milling problems, and poor weather contributed to the decline. Foreign currency reserves were also affected: as the country relies heavily on the export of bauxite and alumina for most of its foreign currency earnings, the world recession and the drop in demand had a significant impact on the economy. Food, raw materials and fuel had to be imported at increasing expense during the early eighties.

A programme was launched in October 1983 to encourage domestic food production both for internal consumption and for export. The modernization of the agricultural sector contributed to an 11.7% increase in the production of cereals in 1983 over the previous year (Cereals: Production). In 1983 the Government agreed strategies with the IMF to reduce the size of the budget deficit. By November 1983 the official and the 'parallel' market exchange rates were unified with a sharp devaluation (43%) of the Jamaican dollar resulting (Exchange Rate). Following successive devaluations in 1984 and 1985 the J$ continued to lose ground against the US$. The Government stabilized the rate at US$1 = J$5.5 during 1986/'87, to be further devalued in 1987/88. The poorest sectors of the community were affected by this and many associated factors, such as: increased taxation, elimination of all subsidies and maintaining expenditure in line with inflation, rising unemployment rates, etc.. Food prices (FPI) rose between 50% and 100% following the removal of the subsidies. This, together with the increase in the price of fuel, led to hardships and resulted in public demonstrations in 1984 and early 1985. In 1986 a loan of US$16.2 million was approved by the IDE to the Agriculture Credit Bank, to be given to farmers with the aim of creating employment for the rural population and increasing food production and thereby reducing the cost of food importation. External financial support for development programmes came also from the IMF, bilateral donors, EEC and the World Bank. The Government was able to benefit from a fall in world oil prices and reduce the import cost of crude oil by 45% in 1986, which further reduced the deficit in the country's balance of trade. The balance of payments during 1985/86 recorded a surplus of US$61.2 million. However, due to decreased export earnings, the country's external debt ratio (Debt Ratio) had risen substantially by 1985. Reduction in food prices, raising public expenditure, lowering interest rates and halving inflation to 7% during 1987 and restricting wage increases to 10% were included in a J$5.8 billion expansionary budget for 1987.

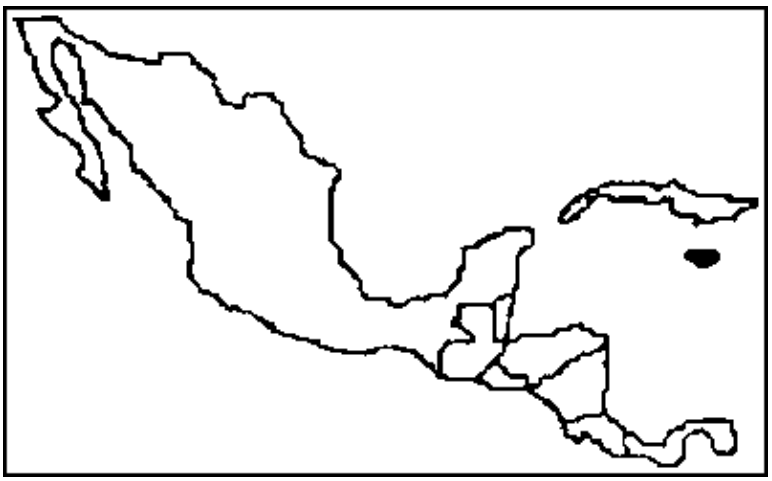
The strongest hurricane recorded this century was responsible for causing enormous damage to the island during August 1988: crops – mainly bananas, coffee and vegetables – were largely destroyed, livestock were killed and over one–quarter of the population seriously affected. FAO reported (Nov, 1988) widespread shortages of poultry and bananas, the population's main sources of protein and carbohydrate.

Nutrition

Two studies provide information on the trend in nutritional status between 1978 and 1985. The prevalence of underweight in preschool children has changed little over this period (Underweight Children). If anything, the prevalence of Grade I malnutrition (Gomez classification) had increased slightly by 1985. Similarly, no strong differences exist between the urban and rural groups. From the more recent study, parish differences may be examined (Additional Prevalence Indicators). While most parishes show an underweight prevalence of between 8% and 13%, two are particularly notable as being much higher than this: St. Catherine's and Manchester.

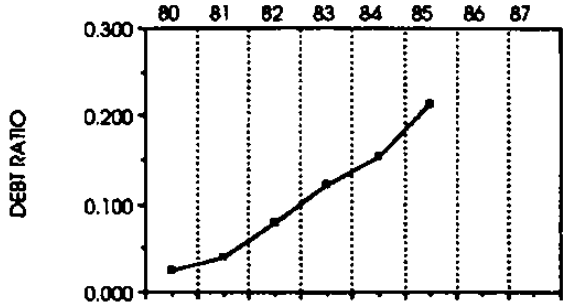
Quarterly prevalence trends are also shown for the last quarter of 1986 and the four quarters of 1987. These are for Gomez Grades II & III. In this short series there is no strong evidence for seasonality.

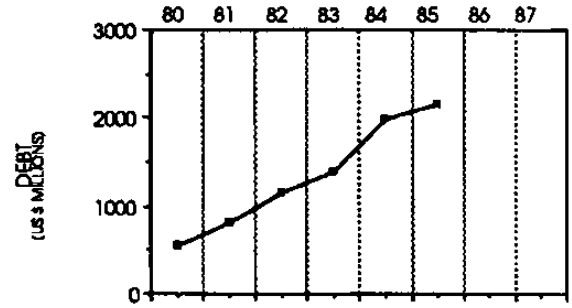
JAMAICA

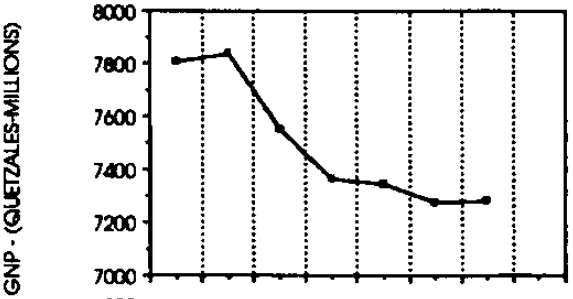


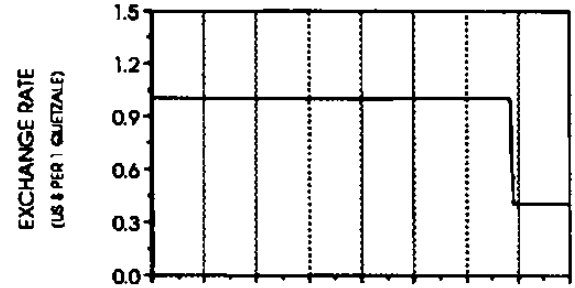
POPULATION: 2.4 M	IMR: 18
POPULATION DENSITY: 218 per sq. km.	U5MR: 23
POP. GROWTH RATE: 1.5% per annum	GNP (PER CAPITA): US$840
PERCENTAGE URBAN POP.: 51%	ESTIMATED PREVALENCE LEVEL UNDERWEIGHT CHILDREN: 10% – 20%

ECONOMIC INDICATORS

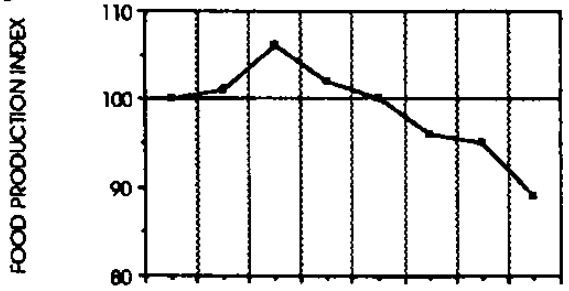


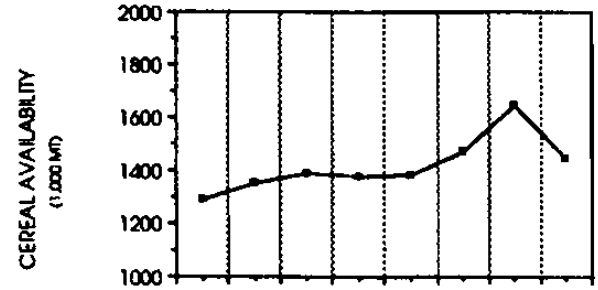


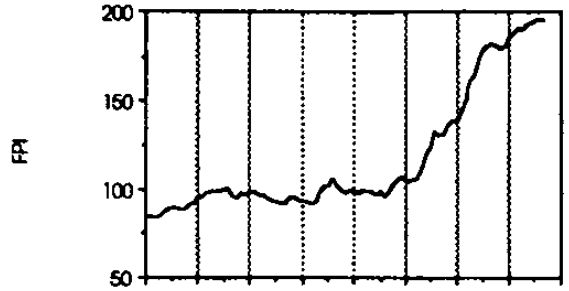


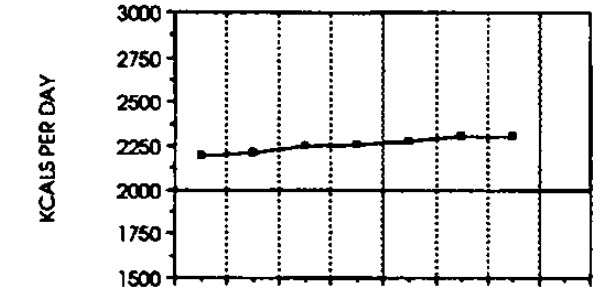


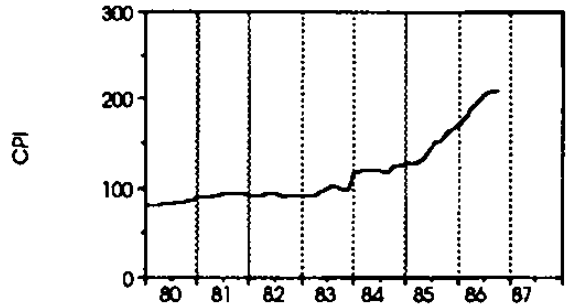
FOOD INDICATORS

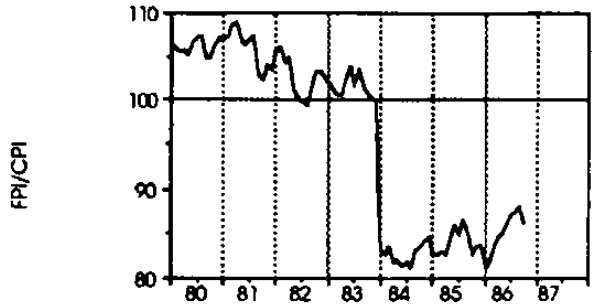






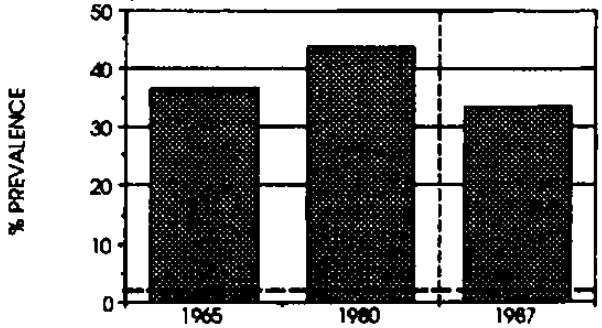




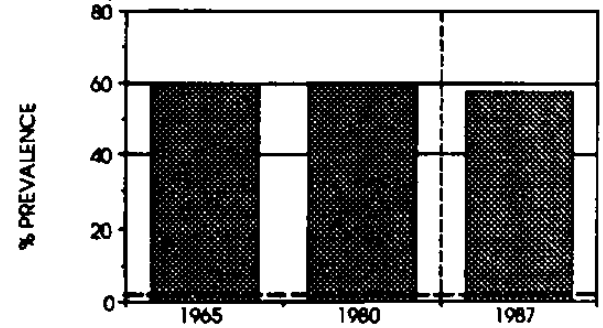


UNDERWEIGHT AND STUNTED CHILDREN

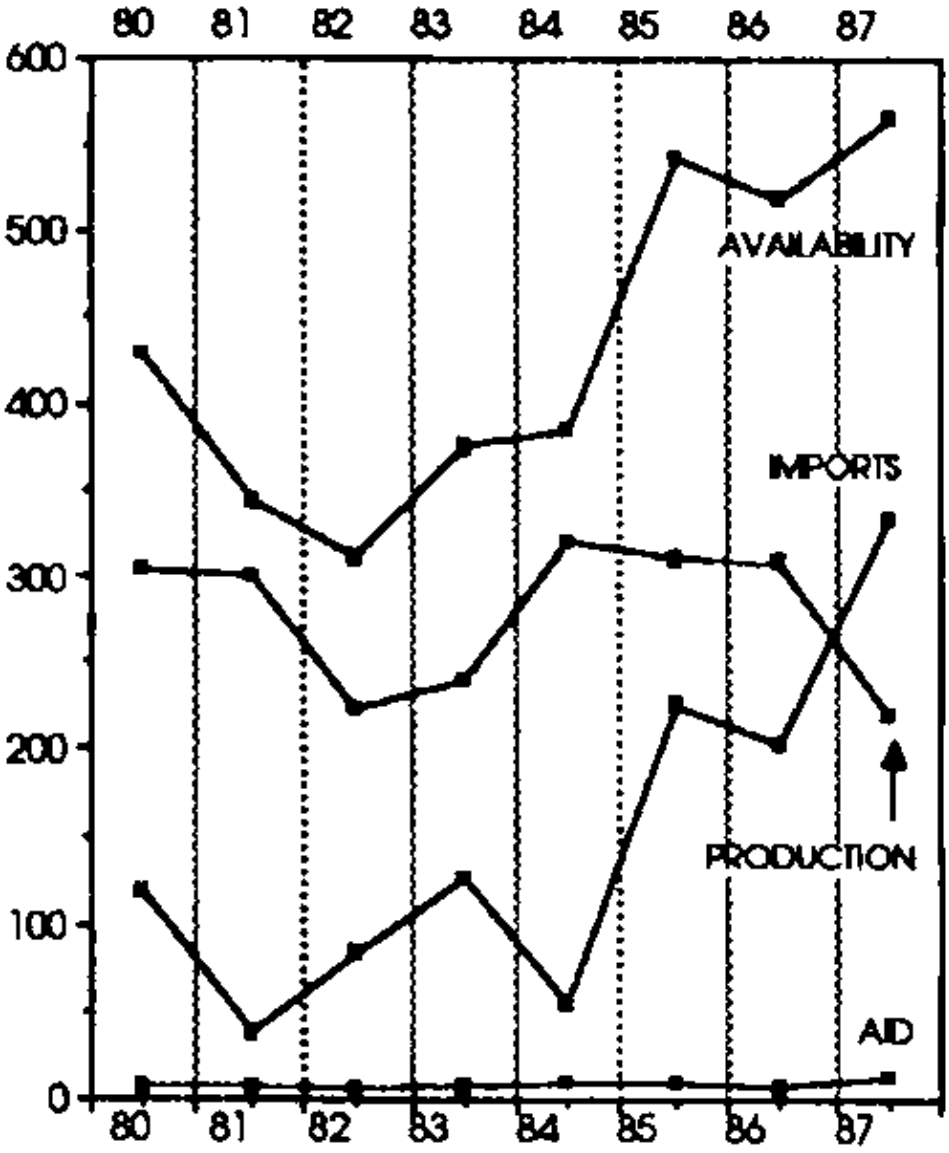
Prevalence of underweight (<-2 S.D. Wt/Age) in preschool children: 1965, 1980, & 1987 (3-36 months).



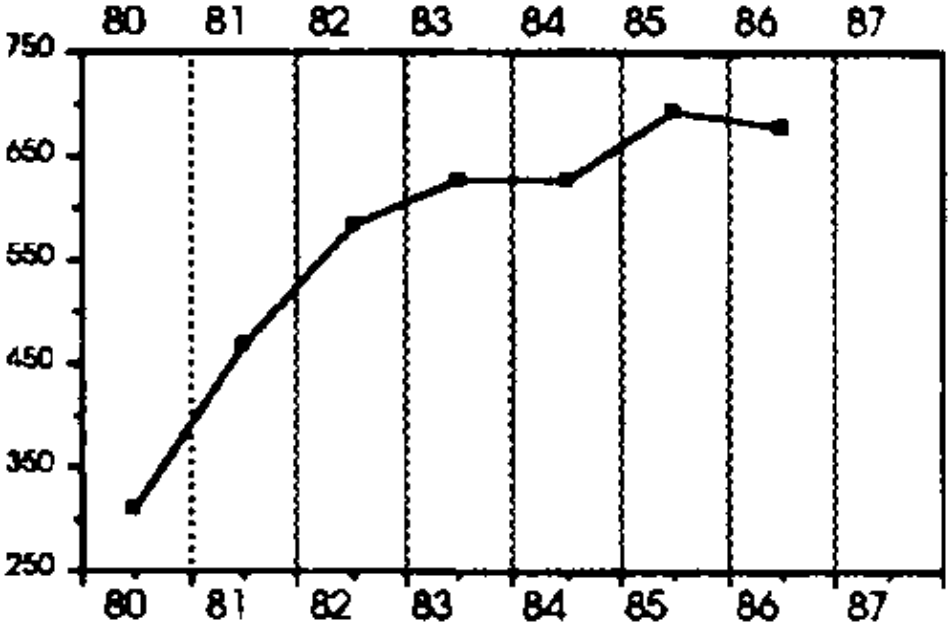
Prevalence of stunting (<-2 S.D. Ht/Age) in preschool children: 1965, 1980, & 1987 (3-36 months).



GRAPHICS

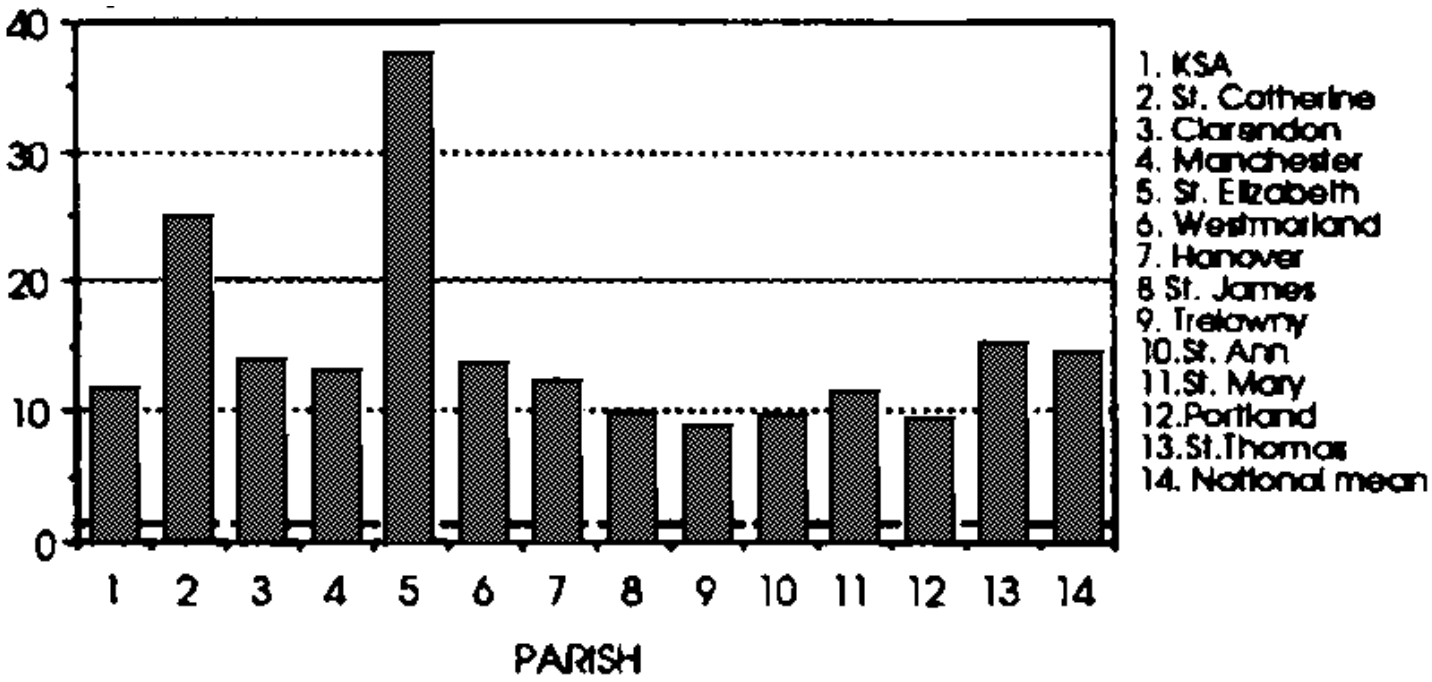


CEREALS (1,000 MT)



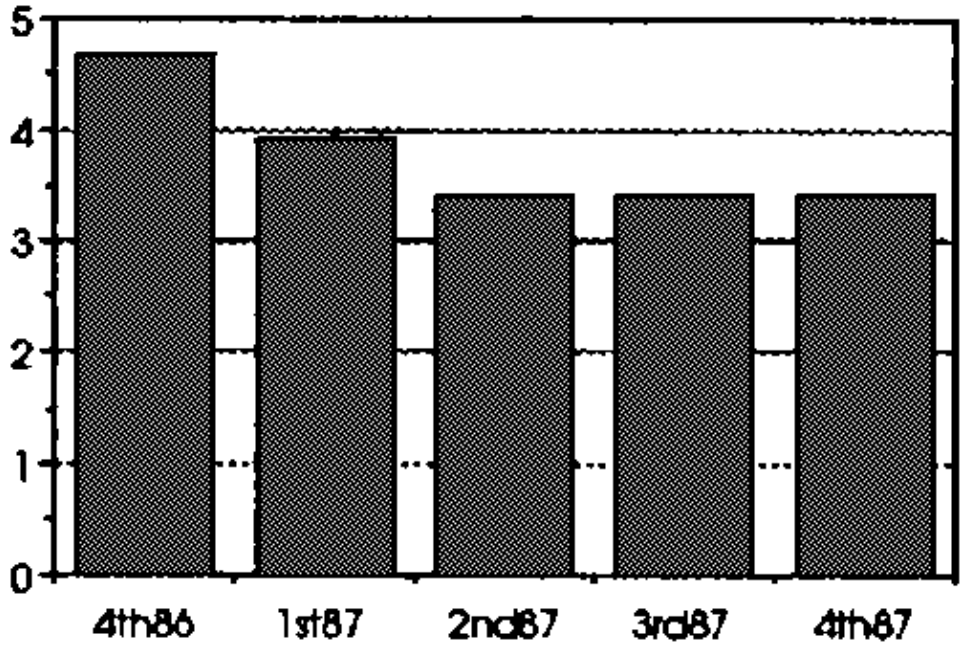
IMF CREDIT (US $ MILLIONS)

ADDITIONAL PREVALENCE INDICATORS



% PREVALENCE – Prevalence of underweight (<80% Wt/Age) children aged under 5 years, by parish for 1984

QUARTERLY PREVALENCE



% PREVALENCE – Quarterly prevalence of most severly malnourished children aged under 5 years. Gomez Grade II + III.

Nicaragua

The Republic of Nicaragua has an area of 139,000 sq. km., and a total population of 3.5 million (1987). The population density is around 27 persons per sq. km. Just over fifty–eight percent of the population lives in urban areas. The population growth rate averaged 3.4% per annum (1980–86). The climate is generally tropical, with a rainy season between May and October.

Agriculture

The agricultural sector generates 20–23% of GDP and employs approximately 40% of the labour force. This latter percentage has been decreasing at about 1% per year during the 1980's. Nicaragua is not yet self–sufficient in the main staple foods. Cereal production rose overall between 1980 and 1985; cereal availability was erratic and reflected import peaks as well as production figures (Cereals: Production and Imports). Production and availability fell substantially in 1986 and again in 1987. In 1986 the value added generated by the agricultural sector fell for the third consecutive year due to a long drought in the northwestern region of the country, lack of inputs and machinery, and the destruction of rural infrastructure and population displacement as a result of the civil war.

Overall, per caput agricultural production declined throughout the period 1980–87 (see Food Production Index). Extensive damage was caused to crops, livestock and infrastructure following the major hurricane in October 1988. FAO reported (Nov) that the sugar, cocoa, bananas and first season cereal crops, were all badly damaged by the hurricane. The second season cereal crop –almost ready for harvesting – had also been affected.

The Economy

During the first half of the 1980's little economic growth took place in Nicaragua. Gross domestic product at constant prices fell 4.5% between 1984 and 1986. The consumer price index increased more than 15–fold between 1980 and 1986, and the food price index 11–fold during that same period, less than CPI, partly because of government– controlled prices of basic food items (CPI & FPI). As a result real earnings have decreased from year to year (1982–83: by 12.7%; 1985: by 4.3%), and the percent of the minimum wage that urban households need to assign to purchase a basic consumption basket jumped from an estimated 68% in 1983 to 225% in 1986.

Nicaragua had consistently a negative trade balance which tended to fluctuate yearly between US$600 and US$900 million (1983–85). The official exchange rate between the US dollar and the cordoba decreased from 0.10 in 1984 to 0.014 in 1987 (Exchange Rate); however, the cordoba in the open parallel market decreased considerably more in value. In early 1988 the exchange rate structure was overhauled and a new official exchange rate of 10 new cordobas per US dollar was established.

In 1982 Mexico replaced the US as the principal source of imports, while the US along with Japan and the Federal Republic of Germany represented the main export markets for Nicaragua's products.

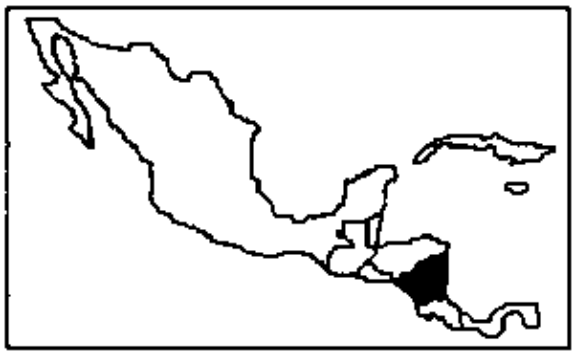
Nutrition

In 1982 it was found that 27% of preschool children were underweight, as compared to 17.1% in 1966 (Underweight & Stunted). This indicates that child nutritional status deteriorated over the period 1966–82, but data to estimate more recent trends are not available. However, considering current difficulties and the other available indicators (and bearing in mind associations seen in other countries) prevalence of malnutrition may well be continuing to rise.

In 1986 the prevalence of growth retardation among school–children (6–9 years of age) was 22.0%, with regional differences ranging from 15.3% to 29.5% (Regional Prevalence).

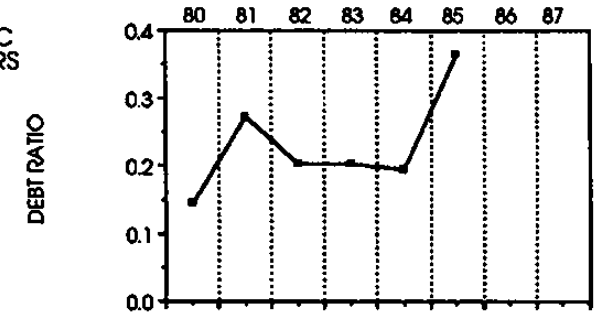
Urban/Rural differences have been found in growth retardation in school–aged children in Region I (22.2% urban versus 33.4% rural) and in Region II (19.2% urban versus 25.6% rural). Male–female differences in the growth retardation prevalence were also found: 24.9% for males versus 19.2% for females; these sex differences were consistent among all regions.

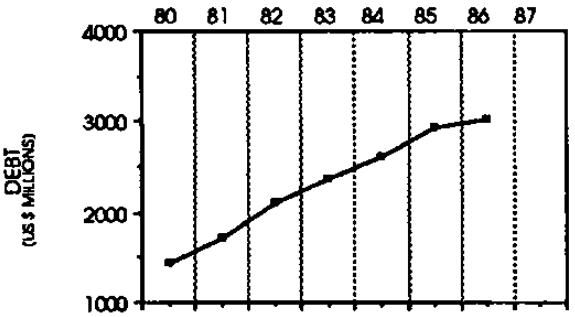
NICARAGUA

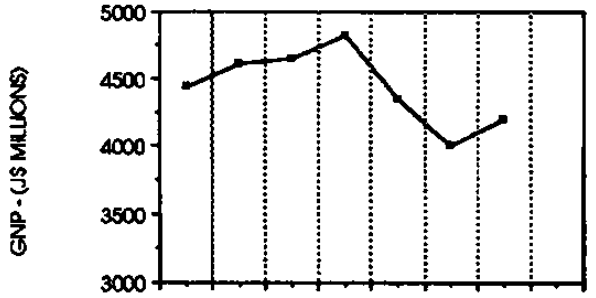


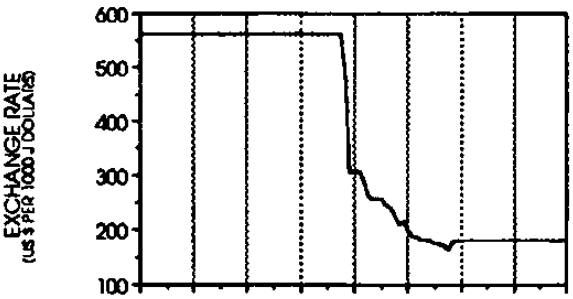
POPULATION: 3.5 M	IMR: 63
POPULATION DENSITY: 27 per sq. km.	U5MR: 99
POP. GROWTH RATE: 3.4% per annum	GNP (PER CAPITA): US$790
PERCENTAGE URBAN POP.: 58%	ESTIMATED PREVALENCE LEVEL UNDERWEIGHT CHILDREN: 10% – 20%

ECONOMIC INDICATORS

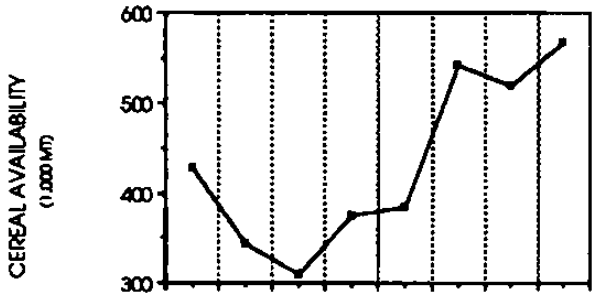


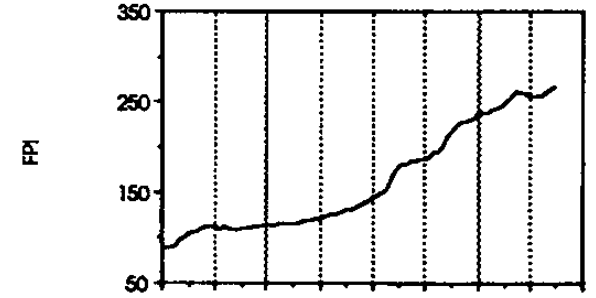


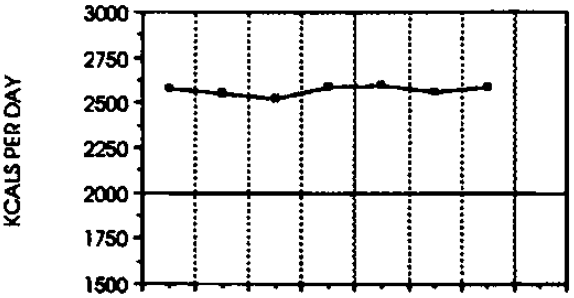


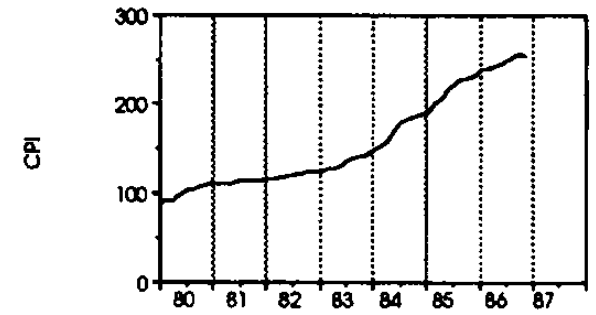


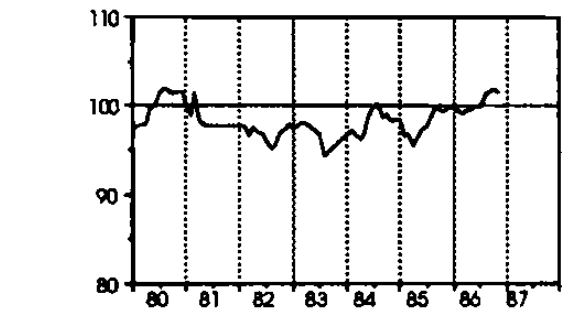
FOOD INDICATORS





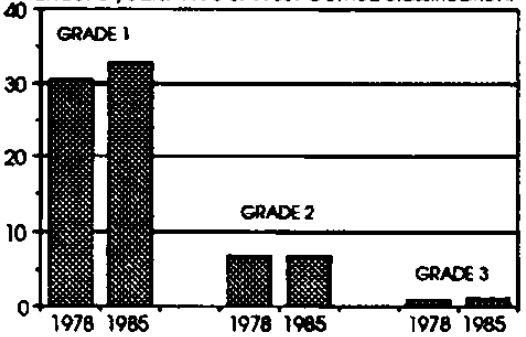




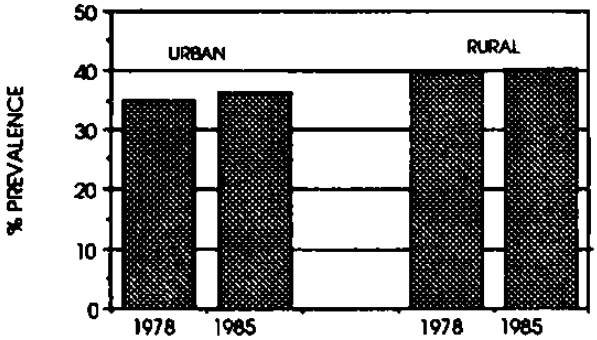


UNDERWEIGHT CHILDREN

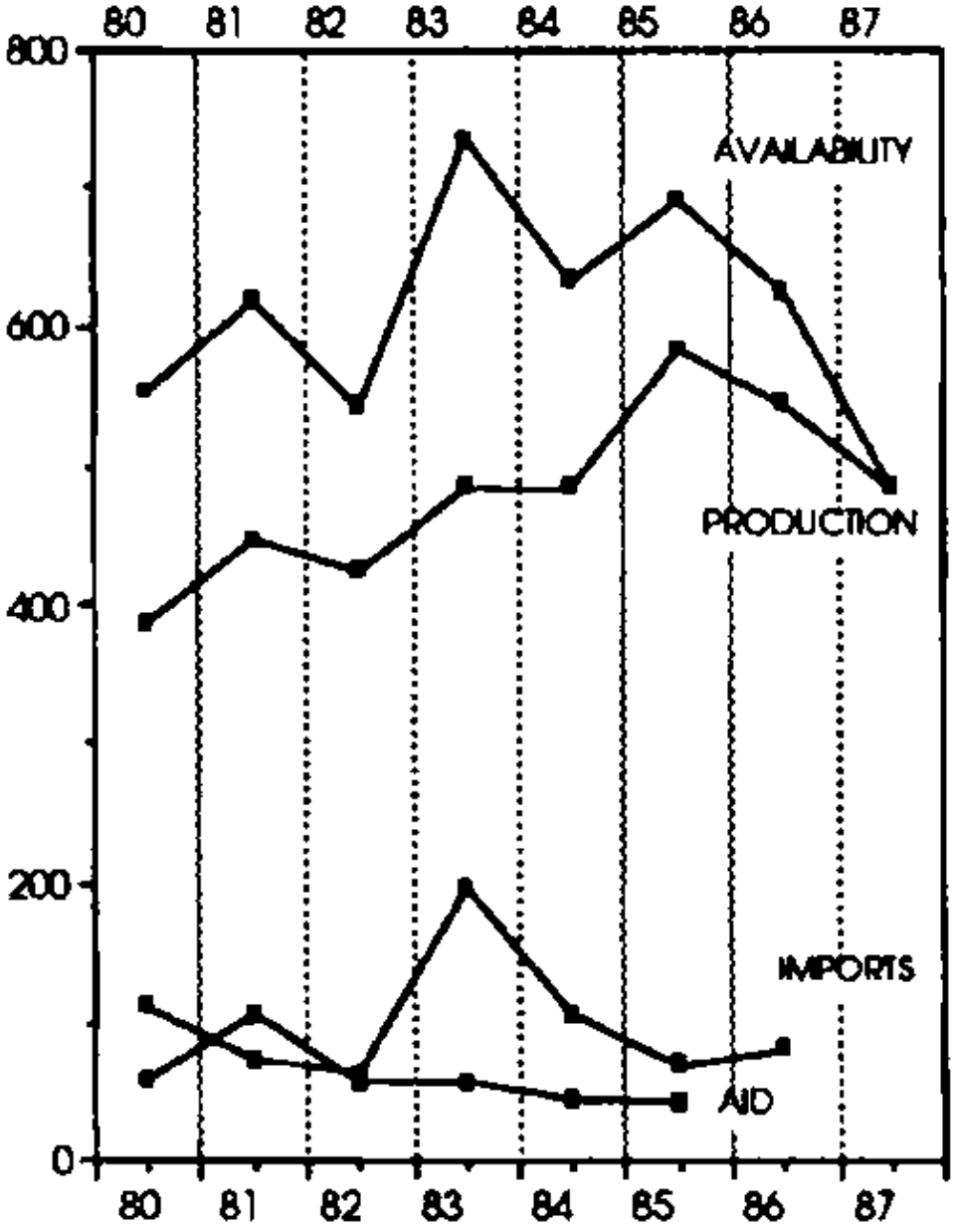
Prevalence of underweight children (Wt/Age) aged under 5 years: 1978 & 1985. Gomez classification.



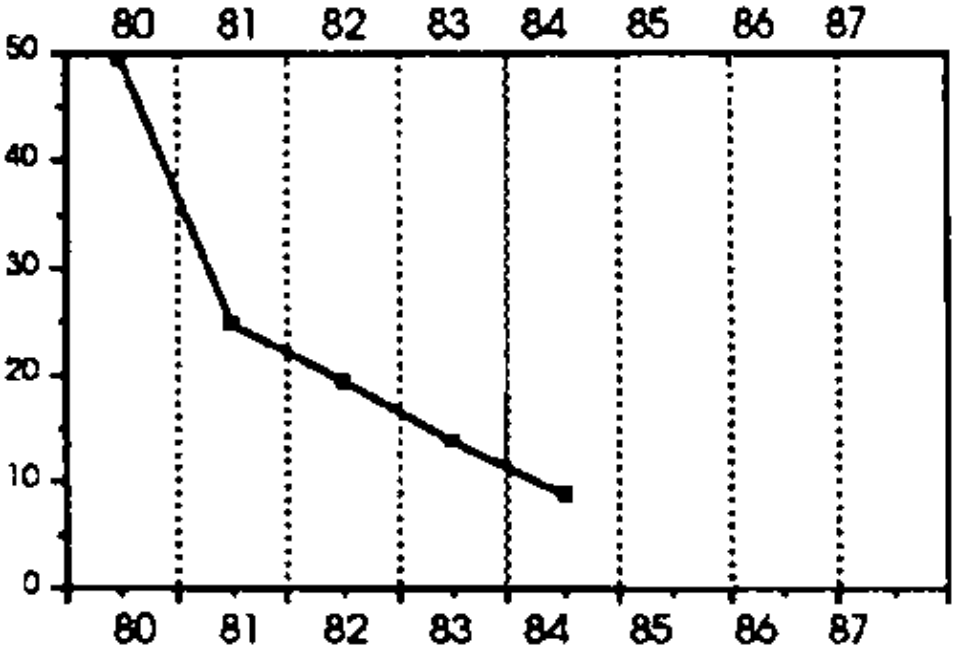
Prevalence of underweight children (Wt/Age) aged under 5 years. Urban v. Rural. Gomez Grade 1.



ADDITIONAL FOOD & ECONOMIC INDICATORS

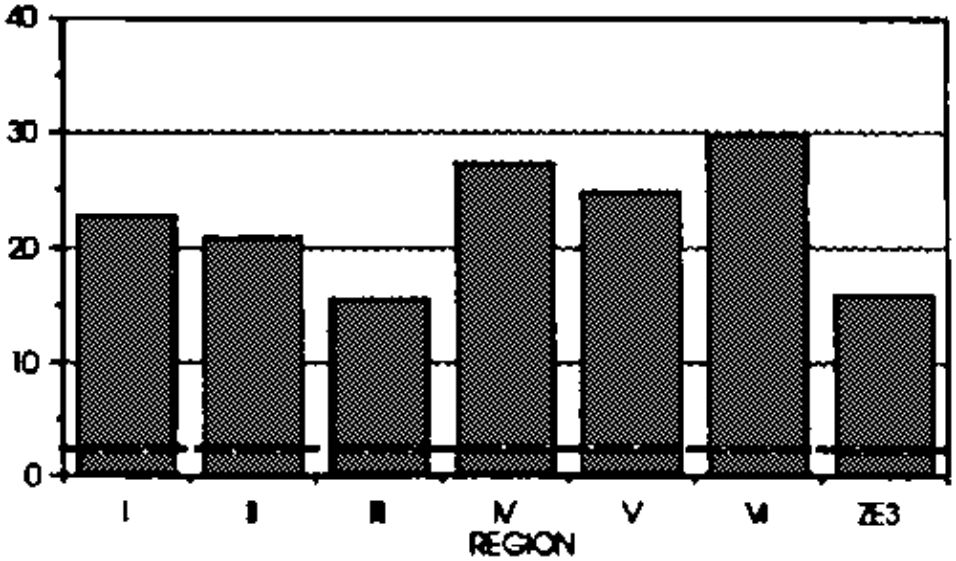


CEREALS (1,000 MT)

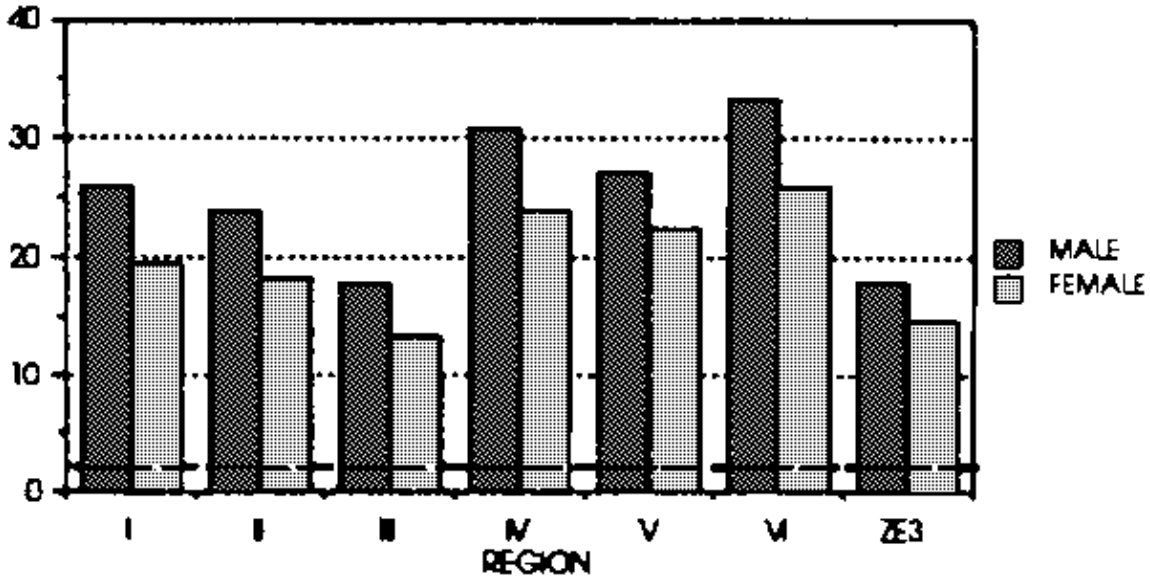


IMF CREDIT (US $ MILLIONS)

REGIONAL PREVALENCE OF STUNTING



% PREVALENCE – Prevalence of stunting (<–2 S.D. Ht/Age) in children aged 6–9 years: 1966. By Region



% PREVALENCE – Prevalence of stunting (<–2 S.D. Ht/Age) in children aged 6–9 years: 1986. By Region and Sex.

Peru

The Republic of Peru has a population estimated in 1987 at 20.7 million, and growing at an average rate of 2.3% per year. Three distinct regions have different ecological conditions: the arid Pacific coast, the elevated Andean region, and the region to the east of the Andes which is partly semi–arid but also includes rain forests. Peru suffered from several drought periods during the 1980's: 1979–80 in the highland and coastal regions; 1983 in the southern areas but with heavy rains and flooding in the North, and 1986 in the coastal regions of the North, but flooding in potato–growing areas around Lake Titicaca. Particularly the 1983 drought and floods aggravated the economic recession which was compounded by falling export prices which started in 1982 and continued in 1983. Economic recovery did not fully start until 1986. Even so, current under– and unemployment problems are serious, as it was estimated in 1986 that only a third of the economically active population is fully employed.

Agriculture

Despite an increase in the area under cultivation (mainly in the Eastern and Sierra regions), total agricultural output did not increase to any significant degree between 1970 and 1985. Expenditure on food imports was increasing and at the same time there was a decrease in export earnings from the country's cash crops. For example, the contribution of the major export crops, i.e. sugar, cotton and coffee to total income from exports had fallen to 7.7% in 1985 as compared with 29% in 1976. Following the 1979–80 drought the food production index increased between 1981 and 1982, but then dropped again in 1983, as a result of a combination of drought followed by floods (see Food Production Index). Total cereal availability and per capita calorie availability decreased accordingly in 1983. The total output for '83 was only 50% of that for a decade earlier. With favourable weather conditions, production recovered in 1984 (Cereals: Production). The agricultural sector registered an annual growth rate of nearly 13% for 1984, and contributed more than any other sector to the recovery of growth which occurred in that year (GNP). A good harvest was had in 1985. In 1986, floods and drought returned to affect the potato and cotton crops, respectively. However, the main cereal crop was relatively unaffected and in fact production increased very slightly on the previous year's figure, and as imports were up substantially, cereal availability increased. Owing to the establishment of guaranteed prices and an easing of credit facilities, the agricultural sector maintained growth in 1985, '86 and '87. The coarse grains crop for 1988 was comparable to the previous year's, however rice production was down by around 15%.

The Economy

The economy suffered during the seventies from recession, falling export prices, increased import needs, a large external debt, and the negative impact of periodic droughts and floods on the agricultural sector. The reasonable rate of growth in the economy achieved between the fifties and the mid–seventies could not be sustained into the eighties. It was only in 1984, after a poor performance between 1980 and 1982, and a

substantial decline in 1983, that GNP showed signed of recovery (GNP). This was maintained up to 1986. The increase in GNP reflected the growth of trade, in the construction industry, and to a lesser extent, the agricultural sector. A continuing devaluation of the inti against the US$ took place during the eighties (Exchange Rate) and in particular in 1985. A new currency unit, equivalent to 1,000 old units, was introduced in May 1985, as an anti–inflationary measure. By early 1986, it was officially announced that the inti would not be devalued further at that time. It became a matter of policy to retain an inflated exchange rate in order to stabilize consumer prices and to ensure that inputs to manufacturing and agriculture did not become unobtainable due to the already high and rising costs (CPI, and FPI).

The relative cost of food decreased between 1981 and mid–1982; for the next two years it rose either at a slightly higher rate than general consumer prices, or at approximately the same rate (FPI/CPI). In early 1987, the exchange rate adjustment began once more, although in a more controlled manner. Price controls were also somewhat relaxed. There was a 39% devaluation in late 1987 and the official exchange rate was set at 33 intis to the dollar. The budget deficit had been increasing at a considerable rate in 1980 and 1981. The deficit in 1982, with some assistance from the IMF (IMF), reached a more modest 4% of GDP, but doubled in 1983 following the poor production figures of that year. Foreign borrowing increased to finance the deficit in 1983 (Debt). Improving conditions in 1984 and 1985 ensured that the deficit was halved. The debt service ratio, which had been very high in 1980, and increased further in 1981, was about 10% by 1985 (Debt Ratio).

Nutrition

Available nutritional data are not strictly comparable over time (Underweight Children), but some tentative inferences can be made. Averaging the Urban and Rural prevalence figures for 1984, and again the combined Urban/Rural values for '87/88, indicates an increase in underweight prevalence from less than 10% to around 14% over this period. The indications are thus that nutrition has suffered during recent years. This is consistent with the price inflation data (as noted in the “First Report on the World Nutrition Situation”, p24, food prices in relation to minimum wages rose sharply in the mid–'80's.)

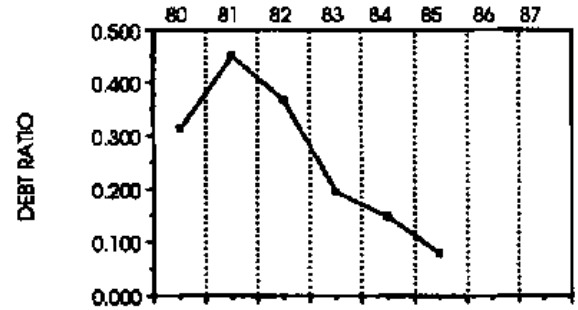
Urban/Rural differences were pronounced in 1984. The prevalence of stunting is very high in rural areas, thought not nearly as marked in the urban districts and towns, especially in Lima Metropolitana (Regional Prevalence).

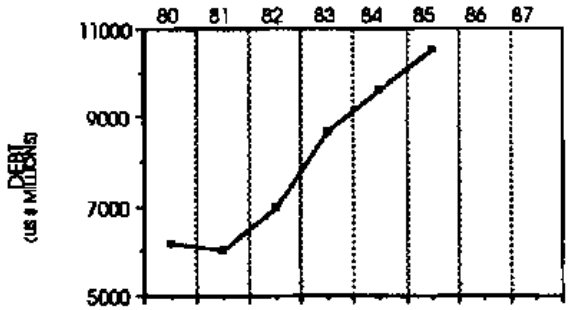
PERU

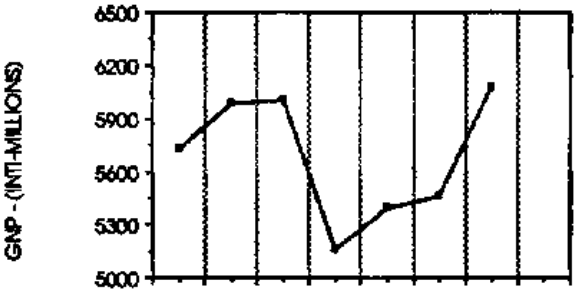
POPULATION: 20.7 M	IMR: 89
POPULATION DENSITY: 16 per sq. km.	U5MR: 126

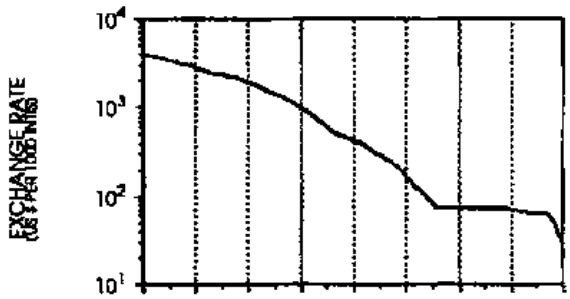
POP. GROWTH RATE: 2.3% per annum	GNP (PER CAPITA): US$1,090
PERCENTAGE URBAN POP.: 69%	ESTIMATED PREVALENCE LEVEL UNDERWEIGHT CHILDREN: 10% – 20%

ECONOMIC INDICATORS

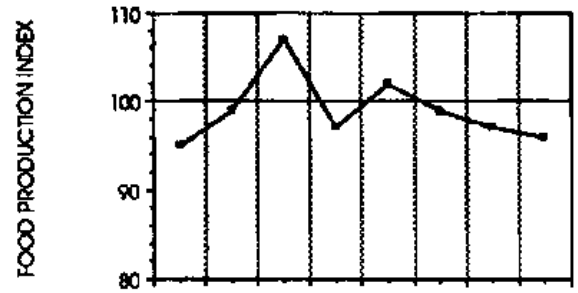


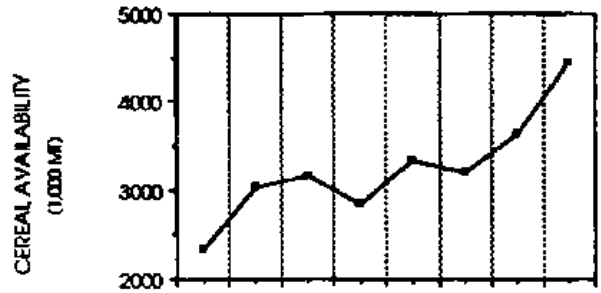


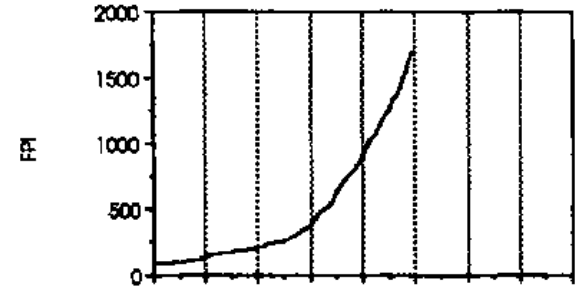


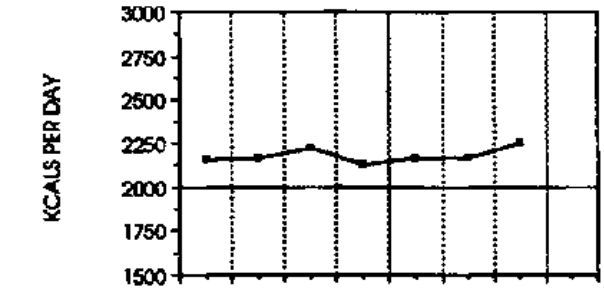


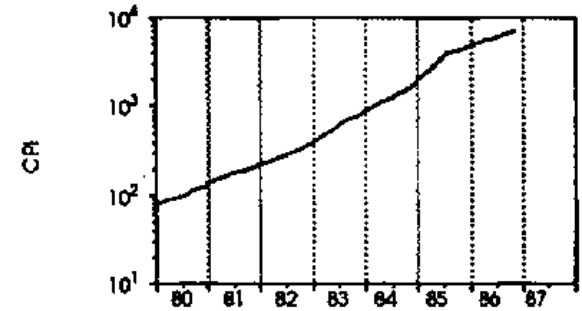
FOOD INDICATORS

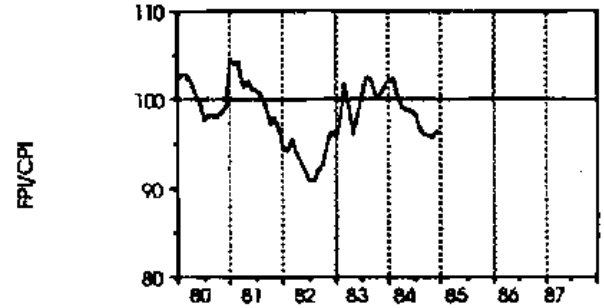




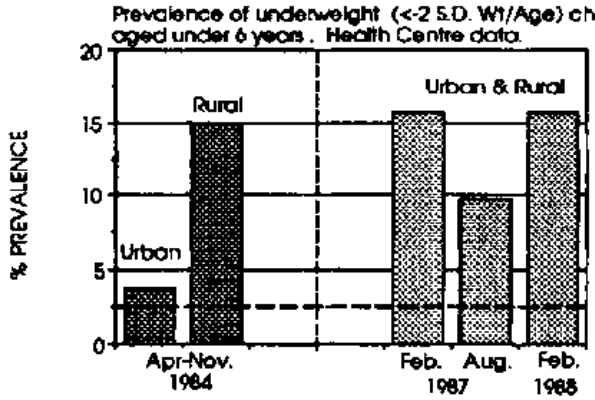




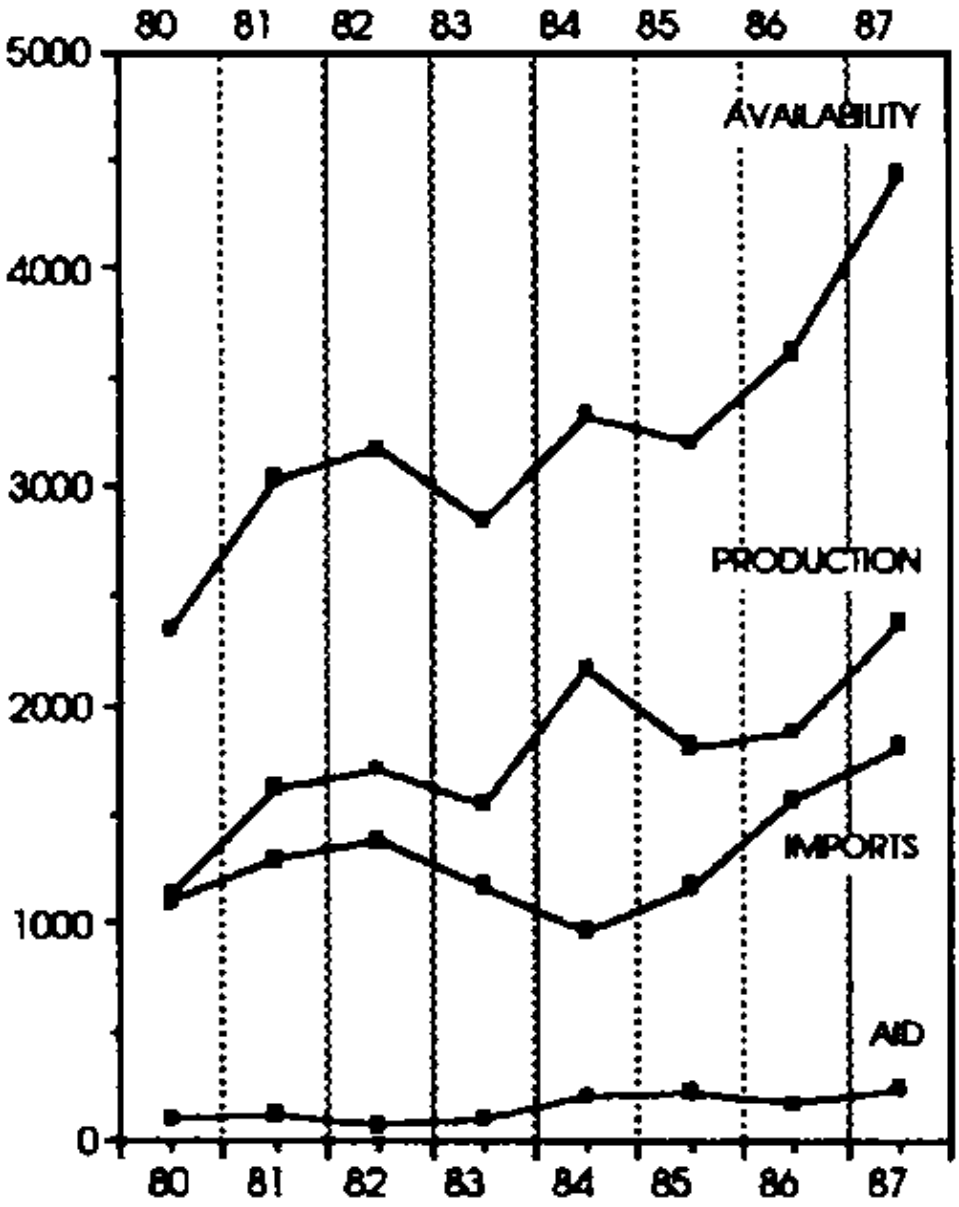




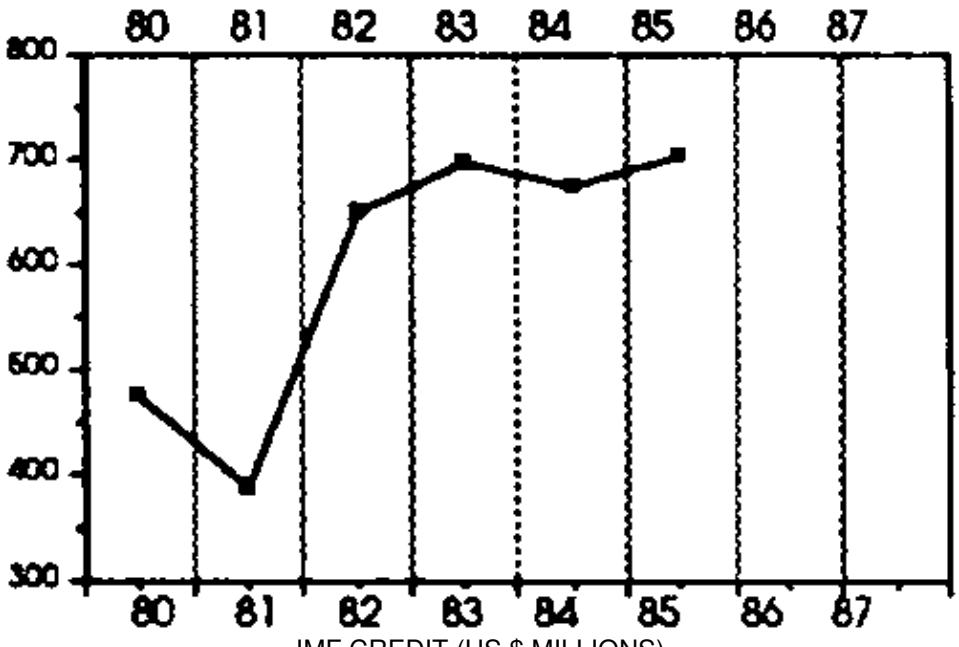
UNDERWEIGHT CHILDREN



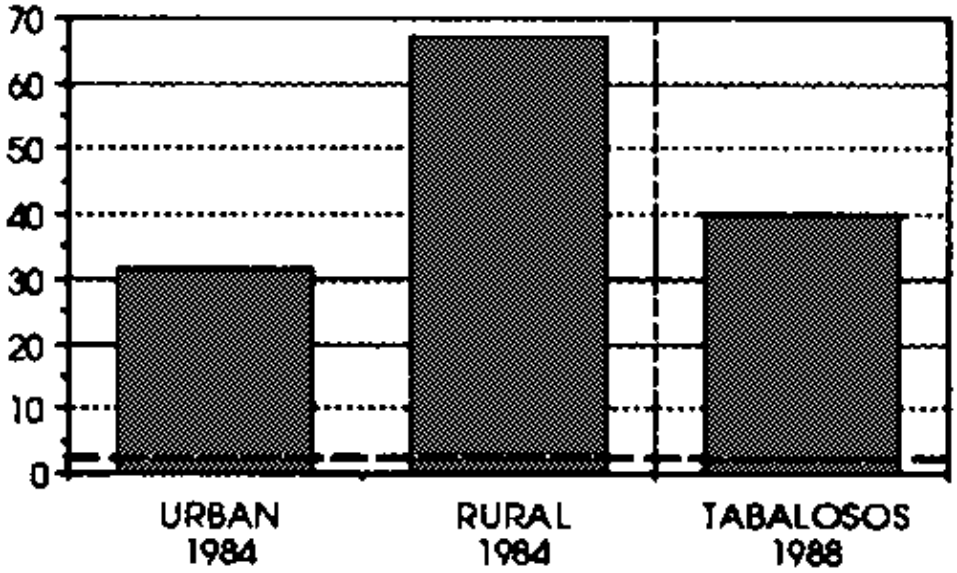
GRAPHICS



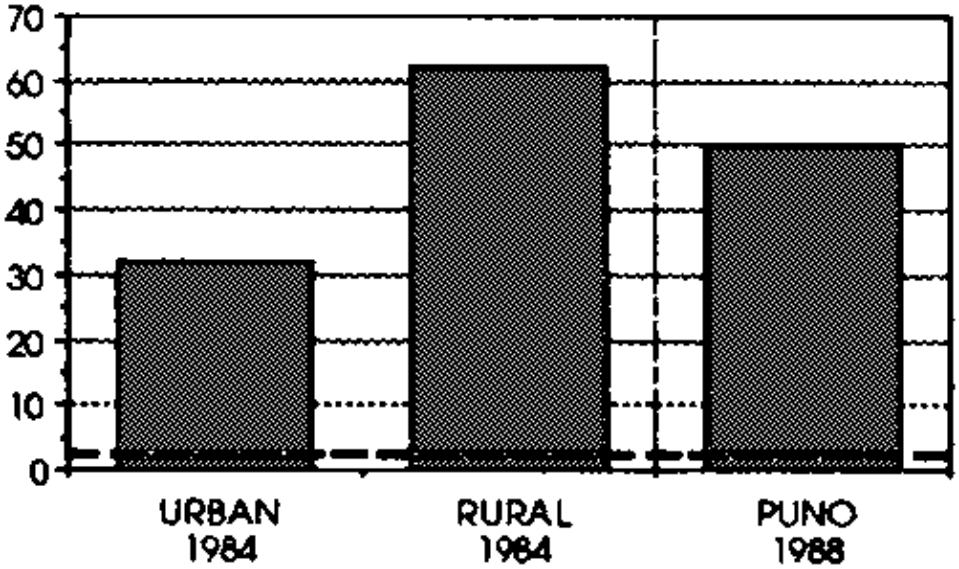
CEREALS (1,000 MT)



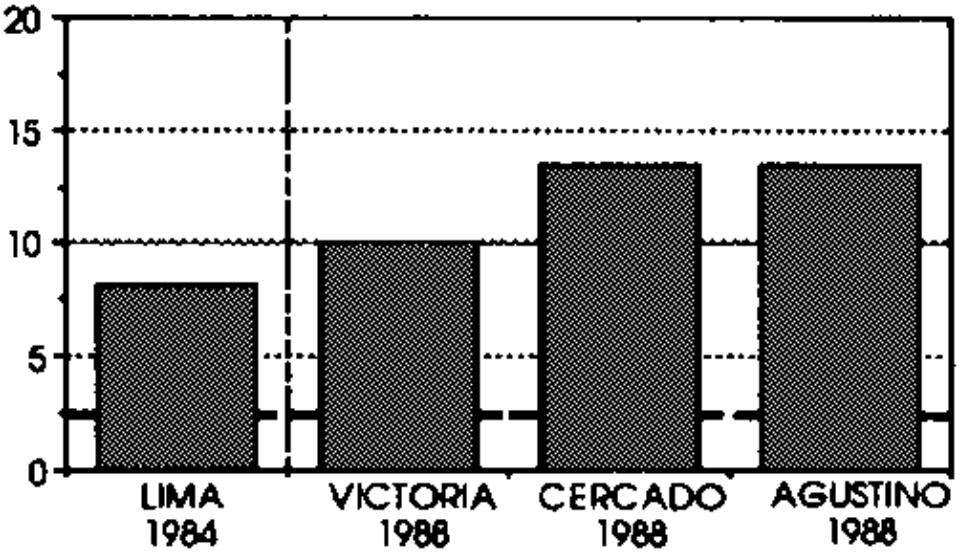
IMF CREDIT (US $ MILLIONS)



% PREVALENCE – Prevalence of stunting (<–2 S.D. Ht/Age) in children aged 60–71 months in Selva Alta Region. Health Centre data.



% PREVALENCE – Prevalence of stunting (<–2 S.D. Ht/Age) in children aged 60–71 months in Sierra Sur Region. Health Centre data



% PREVALENCE – Prevalence of stunting (<–2 S.D. Ht/Age) in children aged 60–71 months in Lima

Uruguay

Uruguay has a total land area of 176,215 sq. km., and a population estimated in 1987 at almost 3.1 million, resulting in a low population density (18 persons/sq. km.). Uruguay has the lowest population growth rate (0.4%/year) in Latin America. As with the rest of Latin America, Uruguay suffered an economic recession in 1981–84, and it was not until 1986 that real GDP increased for the first time this decade. The economic recession not–withstanding, Uruguay maintains one of the highest levels of per capita income in Latin America (US$1,900). The majority of the population (85%) lives in urban areas.

Agriculture

The agricultural sector generates approximately 10% of GDP, and absorbs 15% of the workforce. Principal products are meat (beef) and wool which are labour–intensive in production. Meat and wool are also the principal export items, and Brazil is the major export market for meat. Food production increased sharply in 1981, maintained a high level until 1983, and declined back to the 1980 level in 1984 (see Food Production Index). Food availability (as Kcals per capita per day) shows a slight declining trend post 1983, although it remains high compared to some other countries in the region.

Exports were stimulated when, in 1984, a trade agreement with Brazil and Argentina established a free–trade system and eliminated tariffs among the three countries. A comparatively small sector produces crops such as wheat, maize, rice and oilseeds. With the exception of rice, the production of these food items has been declining during the 1980's, primarily due to reduced acreage under cultivation. Eighty percent of rice production is for exports.

CPI began to rise rapidly in 1983 (CPI), and as total food production and cereal availability started to fall in 1983/84 (Food Production & Cereal Availability), food prices showed a tendency to increase faster than general prices (FPI/CPI). This situation continued through most of 1984, but changed in late 1984 where food prices declined relative to general prices. By late 1985 this down turn was once again reversed and the relative price of food increased. A strong – approximately annual – cycle is evident in this index, at least from 1983 onwards.

The Economy

There is some evidence that suggests that in Montevideo (with more than 40% of the total population) there was a process of increased income concentration before the 1980's. Perhaps as a result, the percent of households below the poverty line (incomes insufficient to cover the cost of a basic consumption basket) increased between 1963 and 1984 from 9.4% to 25%. In the latter year it was found that 42% of children lived in households classified as poor.

As a result of the economic recovery which reduced unemployment and raised real incomes (though inflation accelerated), by 1986 the percent of poor households was reduced to 20%. Between 1980 and 1984, the number of hours of work required per month for the average household to purchase enough food to meet its energy requirements increased from 58 to 75, while falling to 63 in 1986 and 59 in 1987. Over a similar period, the actual cost of purchasing 1,000 Kcals has risen very steeply (Nutrition–Related Indicators).

During the recessionary period export revenues fell by 30% due to significant declines in the world price for beef and protectionist measures imposed by other beef–producing countries. Uruguay devalued its currency by 50% at the end of 1982 (Exchange Rate), and more than doubled its foreign debt between 1981 and 1983 (Debt), which continued upwards through to 1985, as did the debt service ratio (Debt Ratio). During the economic recovery spurred by a 27% increase in exports between 1985 and 1986, the increase in foreign debt slowed down as did the *de facto* devaluation of the currency while foreign earnings rose. The government was also able to meet the IMF–proposed economic targets for 1986 (2% growth rate; less than 5% budget deficit; and 50% annual inflation rate).

Nutrition

There has been a moderate reduction in the prevalence of underweight in preschool children during the eighties. The prevalence rates of weight deficiency and of growth retardation in preschool children attended to

by the public health system show a slight improvement overall between 1980–87 (Underweight & Stunted Children). The later survey may not be strictly comparable with the earlier ones.

Further evidence (from the same studies) that nutritional improvement in the under 5's is taking place is provided by the fact that in 1982 6.5% of the children suffered from acute–or chronic undernutrition (low height–for–age combined with low weight–for–height) while in 1987 this percent was reduced by half (3.2%).

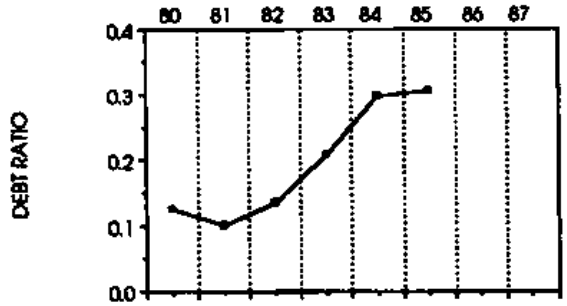
In 1987 among children less than 6 years old, 7.4% were found to be weight deficient (< –2 S.D.) and 11.9% overweight (i.e. >+ 1 S.D.). 15.9% showed evidence of growth retardation (<–2 S.D.).

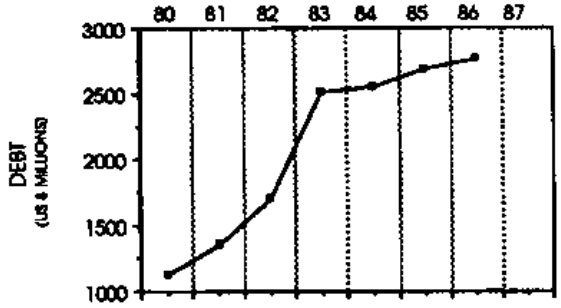
Among older school children the prevalence rates for moderate (–1 to –2 S.D.) and severe (<–2 S.D.) growth retardation were found (in 1987) to be 15.8% and 4.0% respectively.

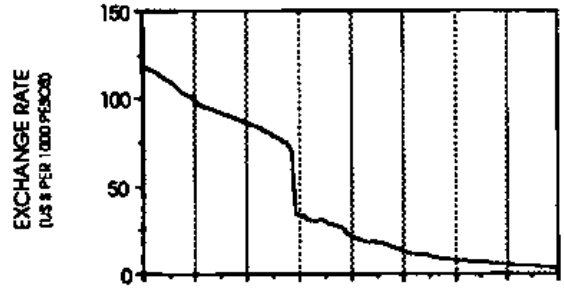
URUGUAY

POPULATION: 3.1 M	IMR: 27
POPULATION DENSITY: 18 per sq. km.	U5MR: 32
POP. GROWTH RATE: 0.4% per annum	GNP (PER CAPITA): US$1,900
PERCENTAGE URBAN POP.: 85%	ESTIMATED PREVALENCE LEVEL UNDERWEIGHT CHILDREN: 0 – 10%

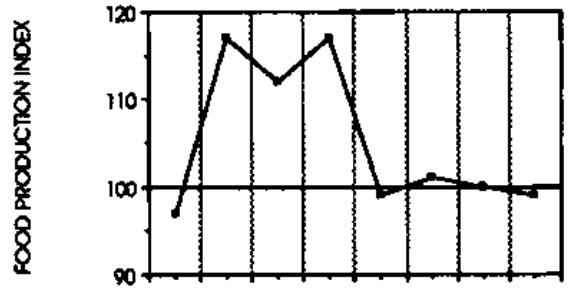
ECONOMIC INDICATORS

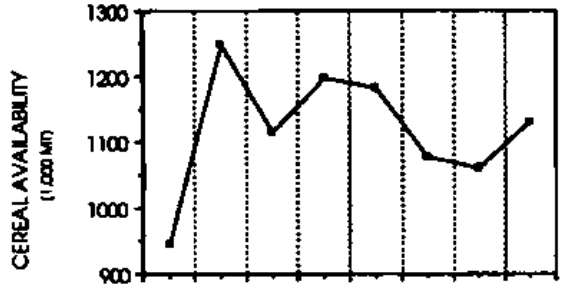


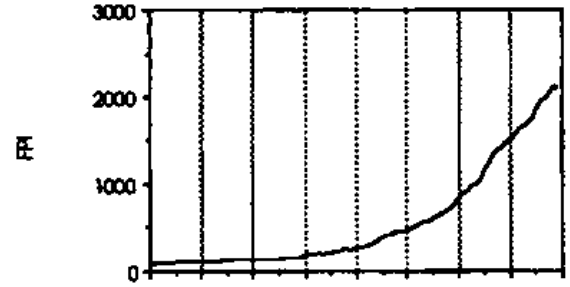


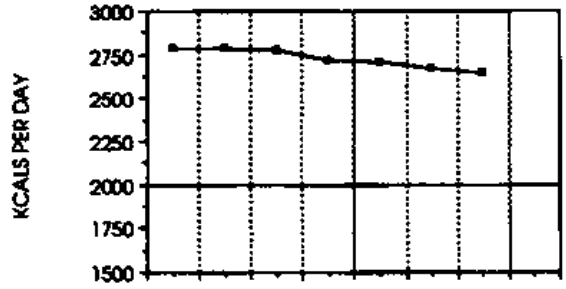


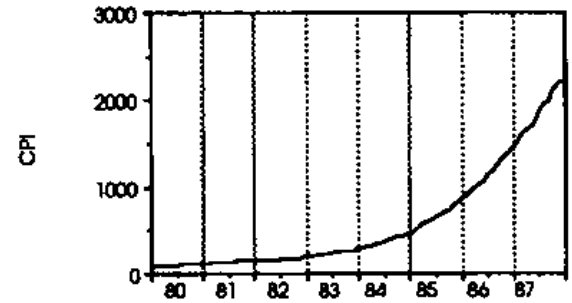
FOOD INDICATORS

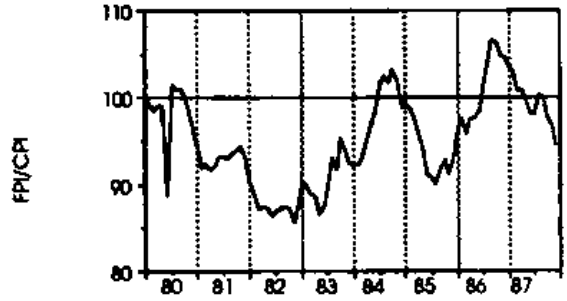




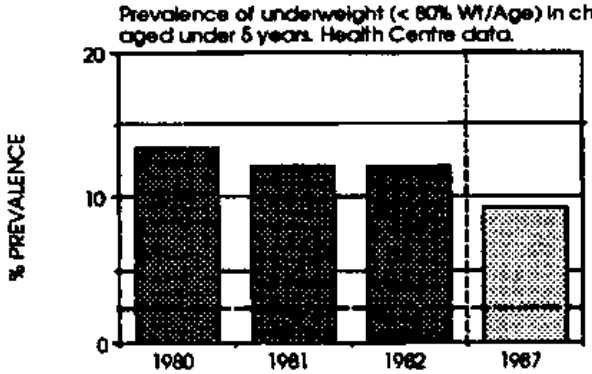


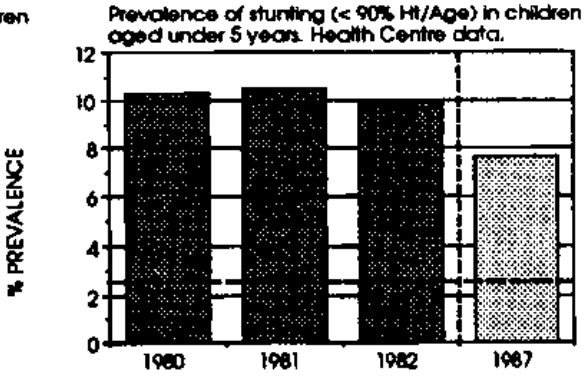




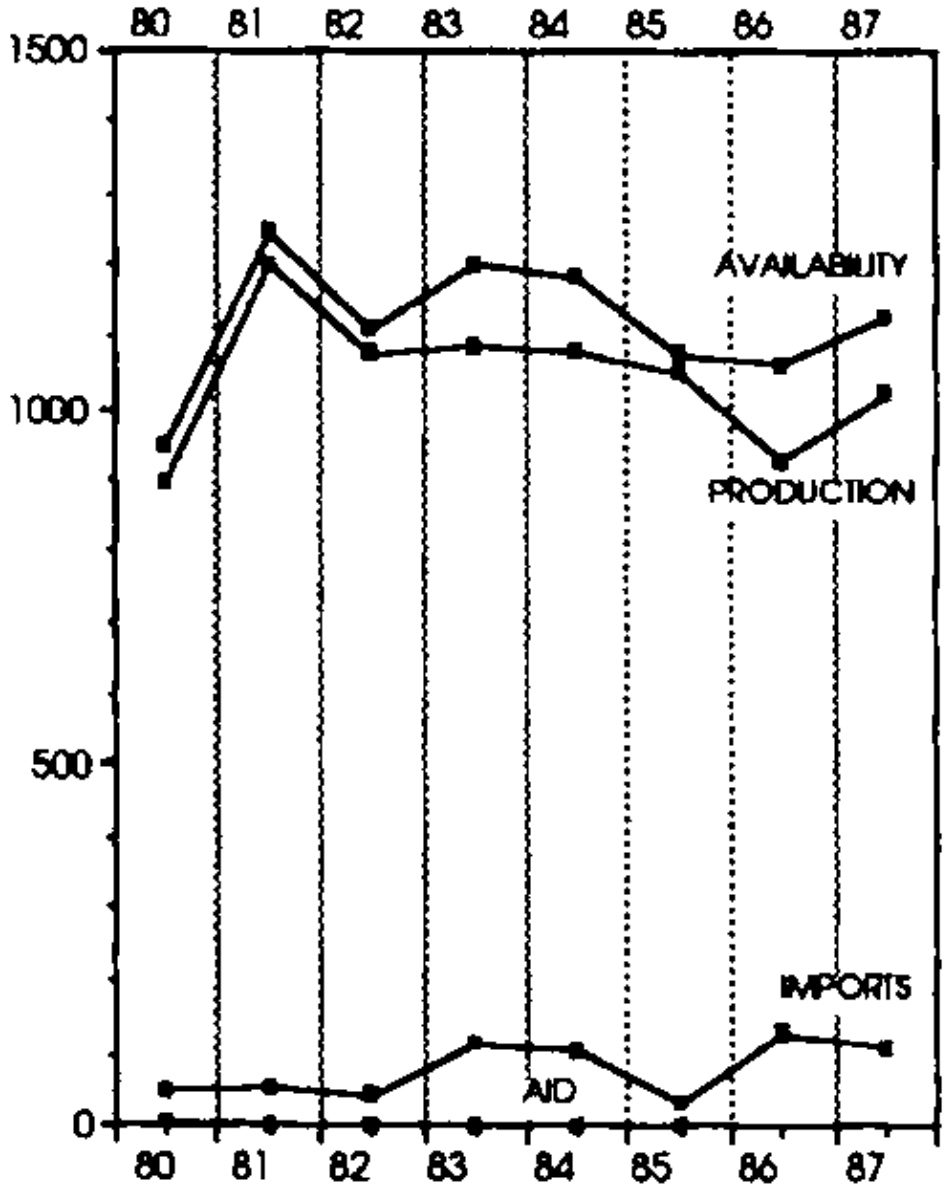


UNDERWEIGHT AND STUNTED CHILDREN

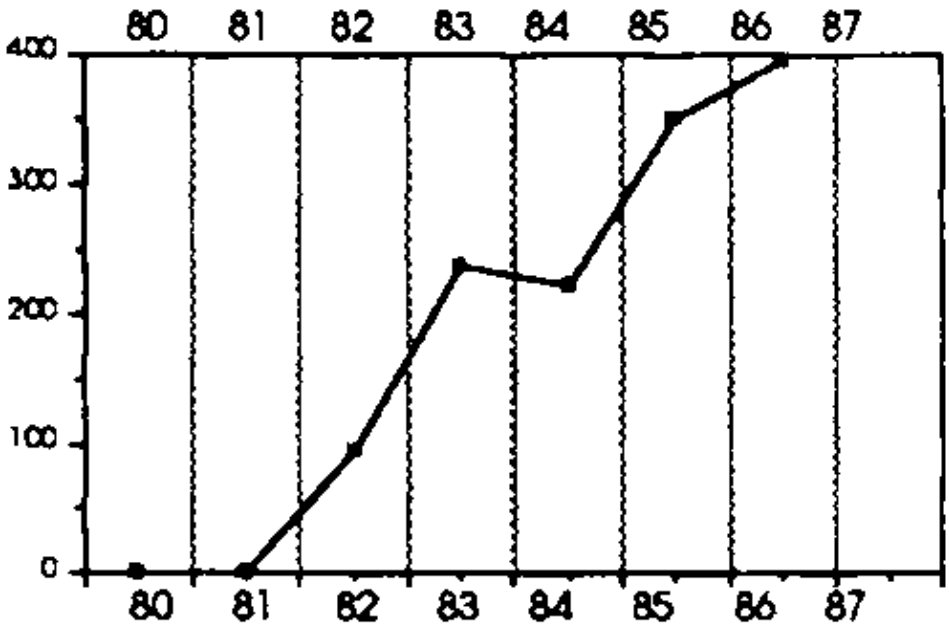




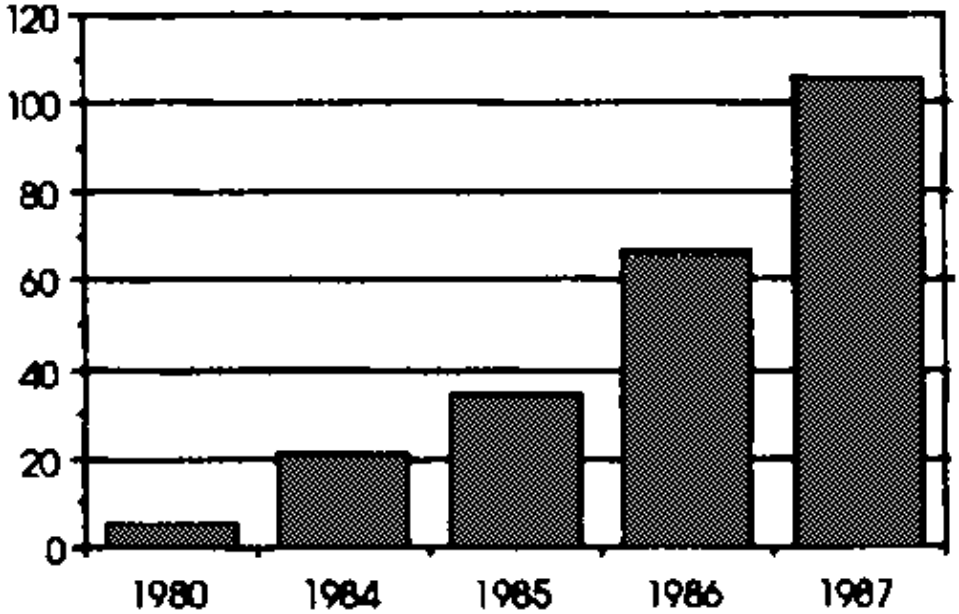
GRAPHICS



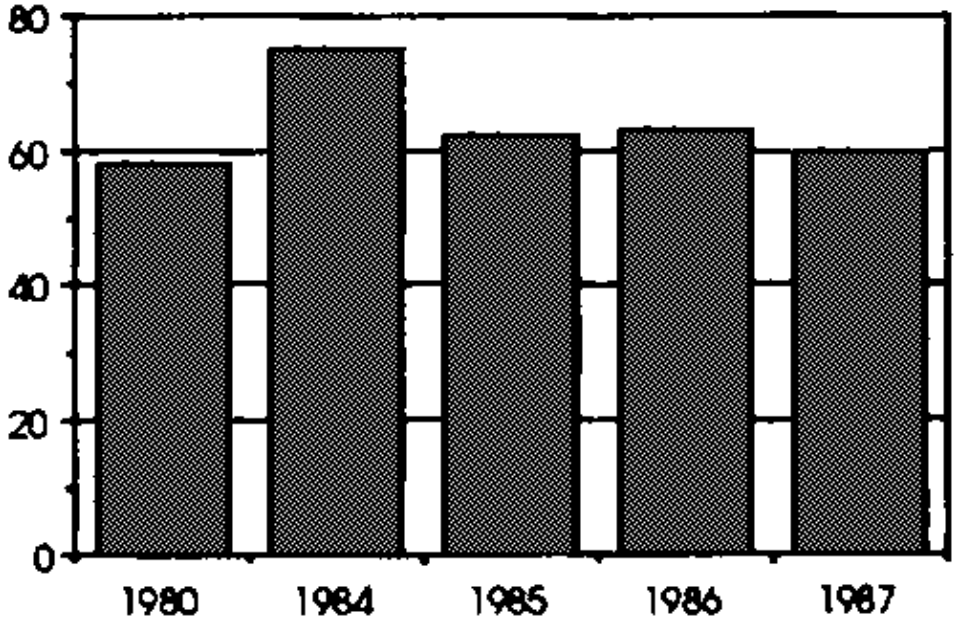
CEREALS (1,000 MT)



IMF CREDIT (US $ MILLIONS)

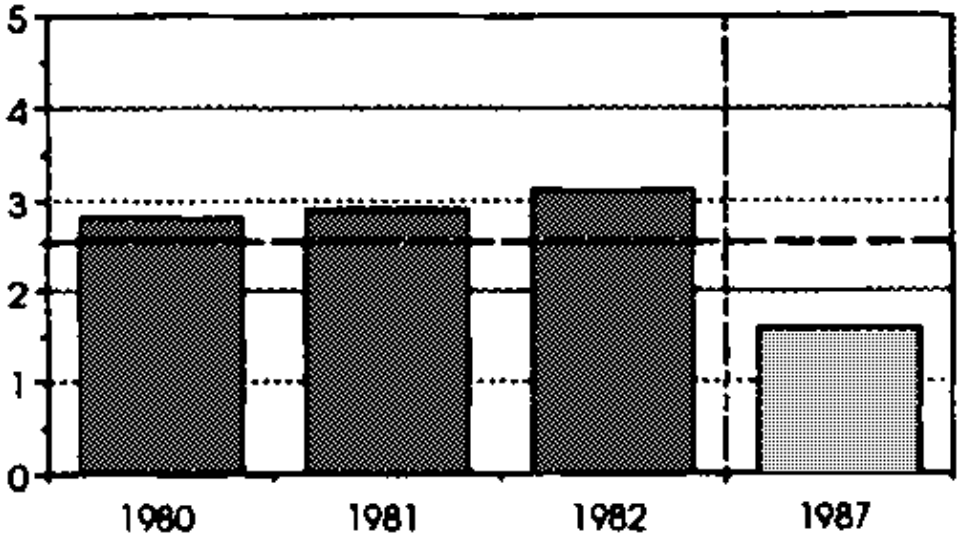


COST/1000 KCALS – Percentage change in the cost of purchasing 1,000 Kcals.



NO. HOURS – Change in the number of hours of work required to satisfy the energy requirements of a typical family.

WASTED CHILDREN



% PREVALENCE – Prevalence of wasting (<80% Wt/Ht) in children aged under 5 years. Health Centre data.

Venezuela

Venezuela has a total land area of 921,050 sq. km. and a population estimated at 18.3 million (mid–1987), giving a population density of 20 persons/sq. km. The annual growth rate of the population is 2.9%. Around 89% of the population lives in urban areas. Thirty–four percent of the population is economically active.

Notwithstanding the economic recovery in recent years, poverty seems to have deepened between 1984 and 1987. In 1984 it was estimated that 11.0% of all households lived in extreme poverty, and this percent increased to 21.1% in 1987. This trend correlates well with the accelerated increase in the general consumer and food price indices during this period – although not on a par with the hyper–inflation experienced by some other countries in the region – probably as a result of an expanding money supply together with relaxed price control (see CPI, FPI). Food prices increased considerably faster than the general price index (FPI/CPI) beginning in 1983, and food is an important component of the minimum consumption basket which determines the poverty line. This may perhaps explain why the percent of households with poverty conditions increased during 1984–87. By contrast, the unemployment rate actually declined from 13.4% in 1984 to 8.5% in 1987.

Agriculture

Only about 15% of the workforce is employed in the agricultural sector which generates a modest 7% of GDP. Although food production fell somewhat since 1983 (Food Production Index), growth in the agricultural sector overall proceeded at an average of 2% a year during 1980–84, and accelerated thereafter at approximately 6% per year. This has made it possible to reduce substantially the portion of food needs covered by imports (1980–84: 40%; 1986: 20%, Cereals: Imports). Cereal production increased during the period 1984–87, allowing a significant fall in cereal imports starting in 1985.

A 10 year agricultural development programme started in 1984 which aimed at a large expansion in land area under cultivation and various improvements in farming infrastructure contributed. Nevertheless, total cereal availability which peaked in 1985, fell in 1986, – following the decline in imports, before production could compensate – recovering partially in 1987 (Cereal Availability).

Available dietary energy supply (as Kcals per day) showed a slight downward trend between 1981 and 1986, including during 1984–85 when total cereal availability was relatively high (Cereal Availability). However, cereals contribute only about 20% to the average daily diet in Venezuela.

The Economy

The economic growth experienced in the seventies was largely reversed in the eighties following the sharp fall in international oil prices. During 1981–84 the economy tended to contract: the average annual growth rate equaled –1.7%; GNP fell between 1980 and 1985 (GNP). By 1983, the government had introduced a wage freeze, a reduction in public spending, withdrawal of subsidies on a wide range of goods, and increased taxes.

This trend in GNP started to be reversed in 1985, partly due to a sharp devaluation of the bolivar in 1984 (Exchange Rate), further aided by increased petroleum earnings, and a balance of payments surplus. As the oil industry provides around 95% of export earnings, this ensures that the internal economy is driven – to a significant degree – by the international market price of oil.

Late in 1986, the government introduced a new package of economic measures which included a further 48% devaluation of the bolivar which was expected to add to inflation. Included was also, however, an increase in the minimum wage, and prices of over a hundred basic goods were frozen. 1986 and 1987 also saw several general wage increases.

Nutrition

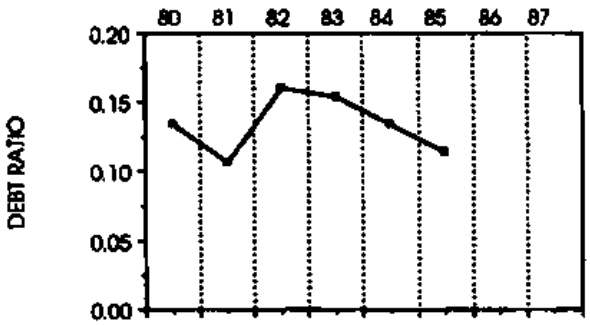
The prevalence of wasting in the population under 15 years of age is estimated from health–centre data to have changed comparatively little between 1984 and 1987, except probably for a peak in 1985 (Wasted Children). This relative stability may be attributable to general increases in household income (resulting from reduced un–employment and general economic growth as well as negotiated wage increases) which at least partially offset price increases. Various group feeding programmes run by the National Institute of Nutrition aim to provide nutritional protection for vulnerable population groups. These include school feeding, distribution of food packages at the household level, feeding programmes for preschoolers and pregnant women, and popular and industrial cafeterias.

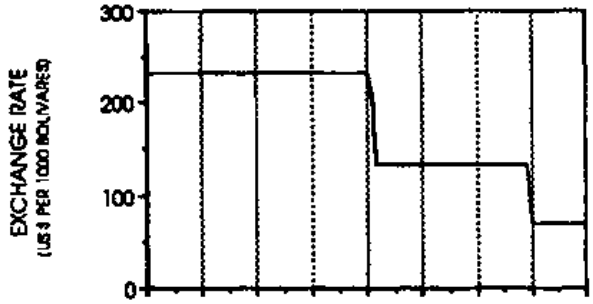
It is noticeable that in 1985 when the prevalence of wasted children peaked, just as the relative price of food was rapidly rising, there was also a tendency to a reduction in the prevalence of overweight (>90th. percentile) in children (Quarterly Prevalence).

VENEZUELA

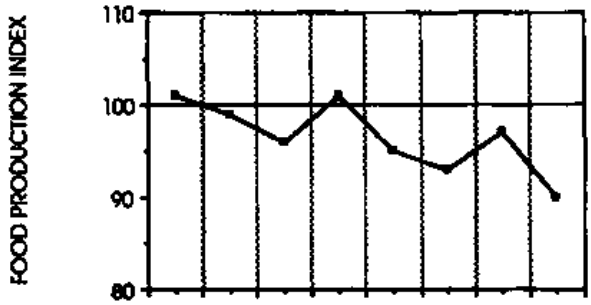
POPULATION: 18.3 M	IMR: 36
POPULATION DENSITY: 20 per sq. km.	U5MR: 45
POP. GROWTH RATE: 2.9% per annum	GNP (PER CAPITA): US$2,920
PERCENTAGE URBAN POP.: 89%	ESTIMATED PREVALENCE LEVEL UNDERWEIGHT CHILDREN: 0 – 10%

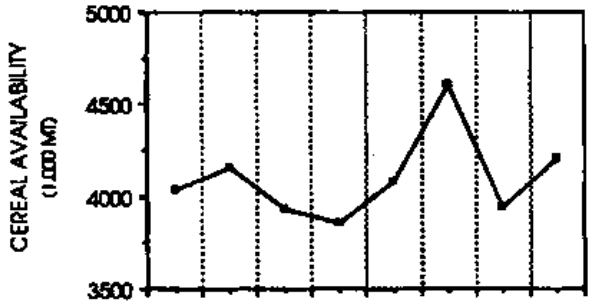
ECONOMIC INDICATORS

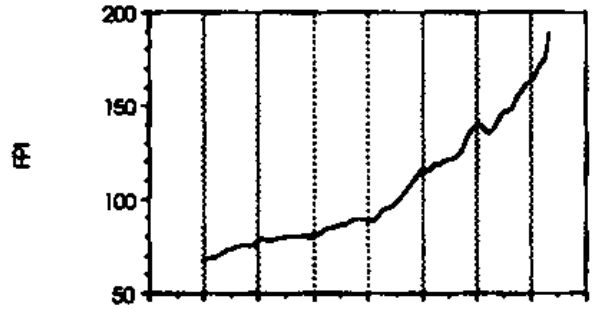


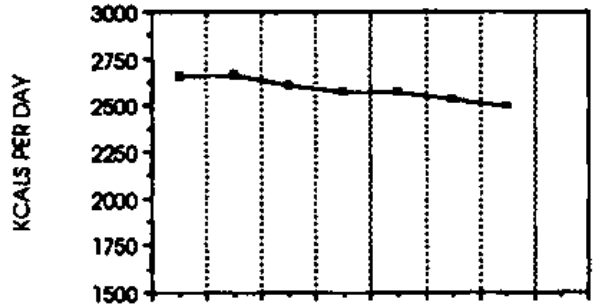


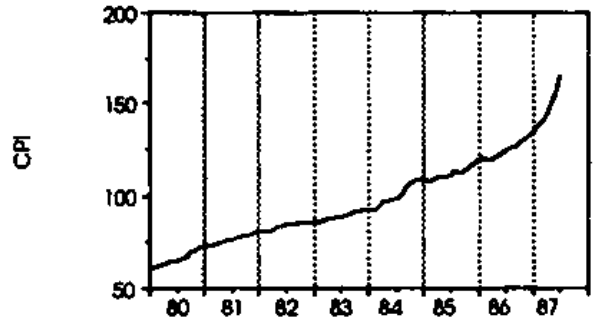
FOOD INDICATORS

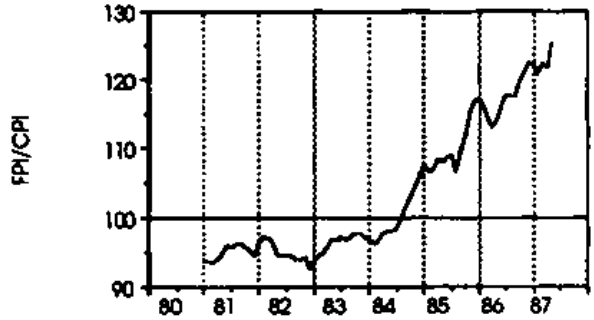






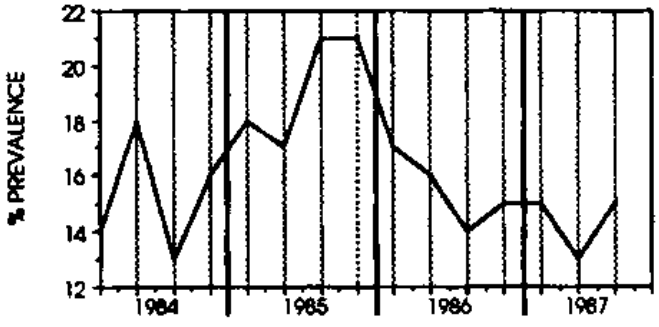




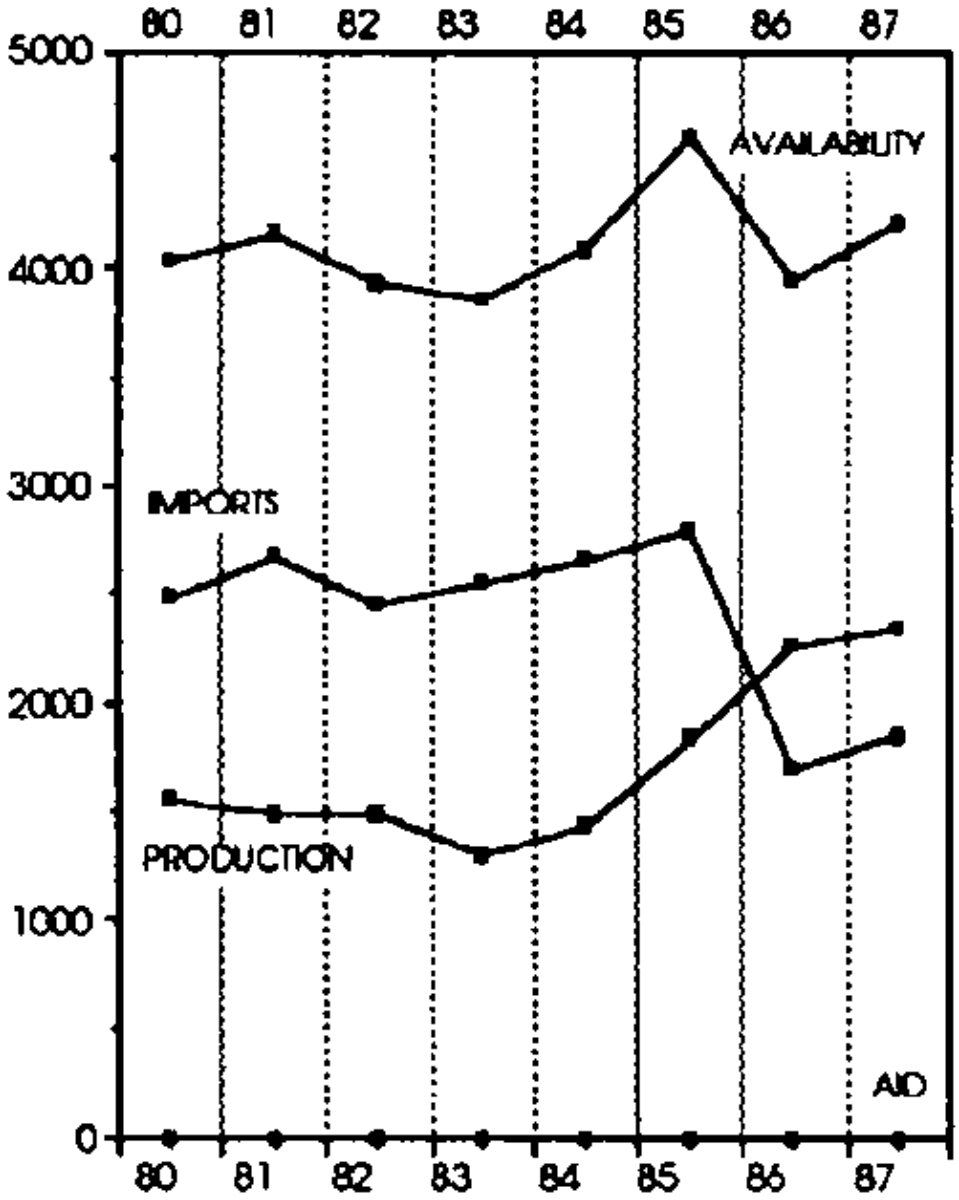


WASTED CHILDREN

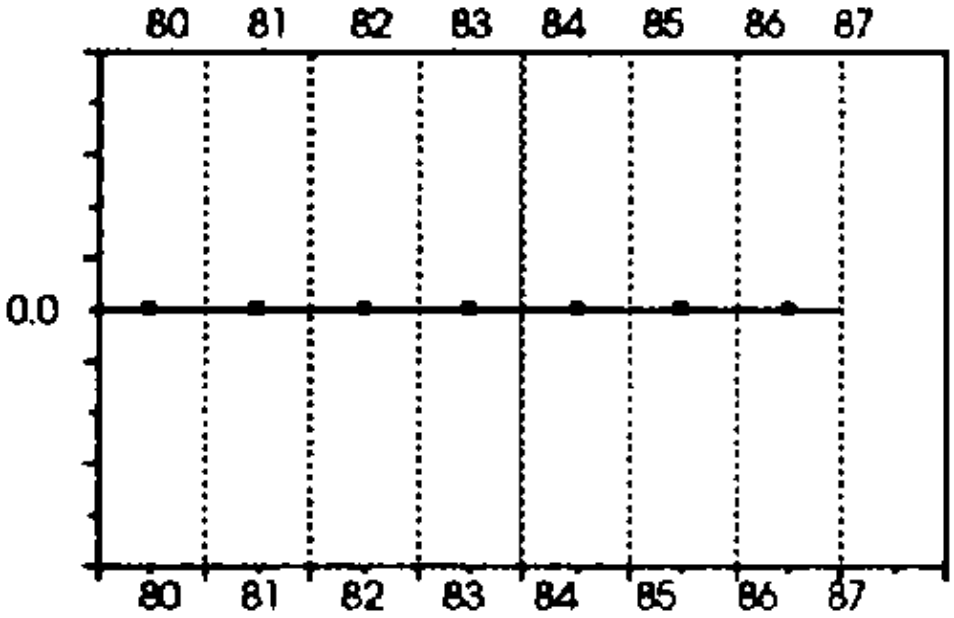
Quarterly prevalence of wasting (<10 percentile W1/H1) in children aged under 15 years. Health Centre data.



ADDITIONAL FOOD & ECONOMIC INDICATORS

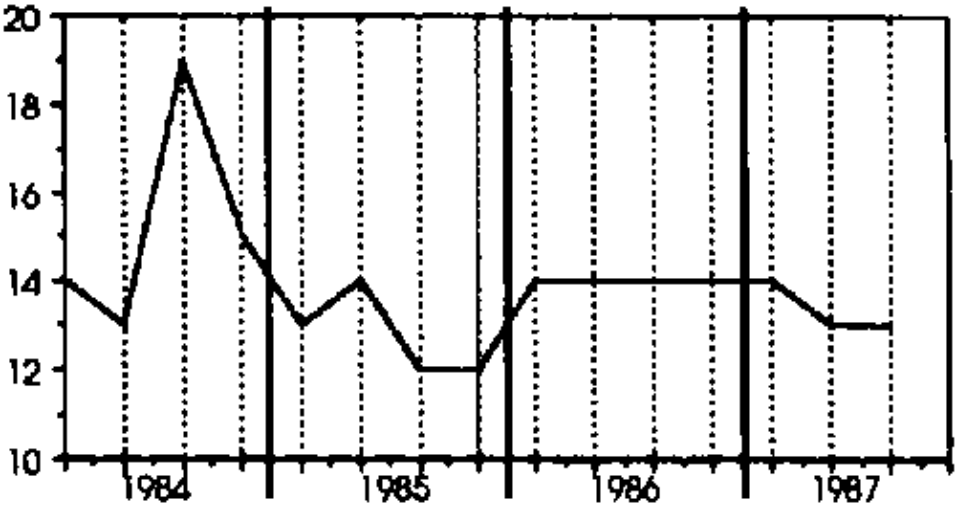


CEREALS (1,000 MT)



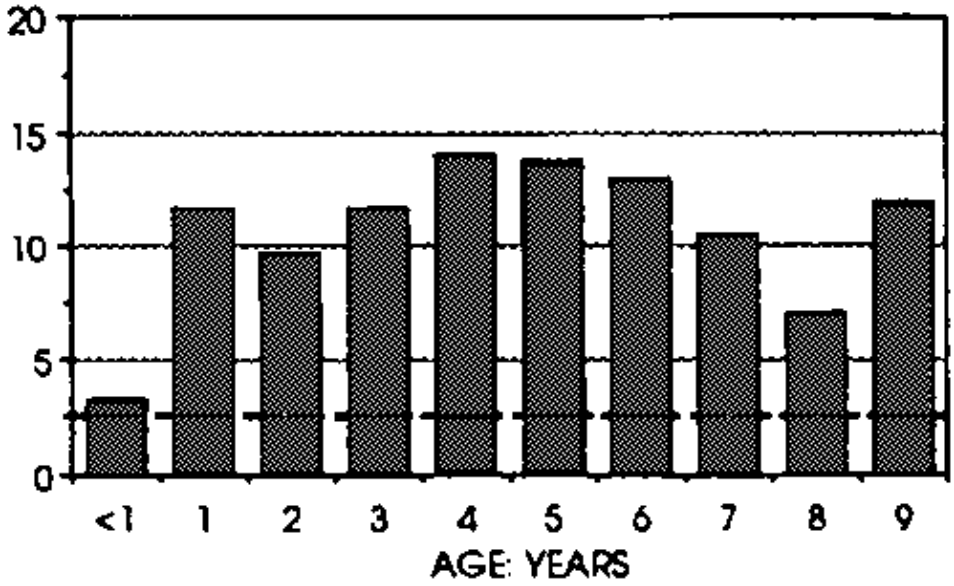
IMF CREDIT (US $ MILLIONS)

TRENDS IN QUARTERLY PREVALENCE

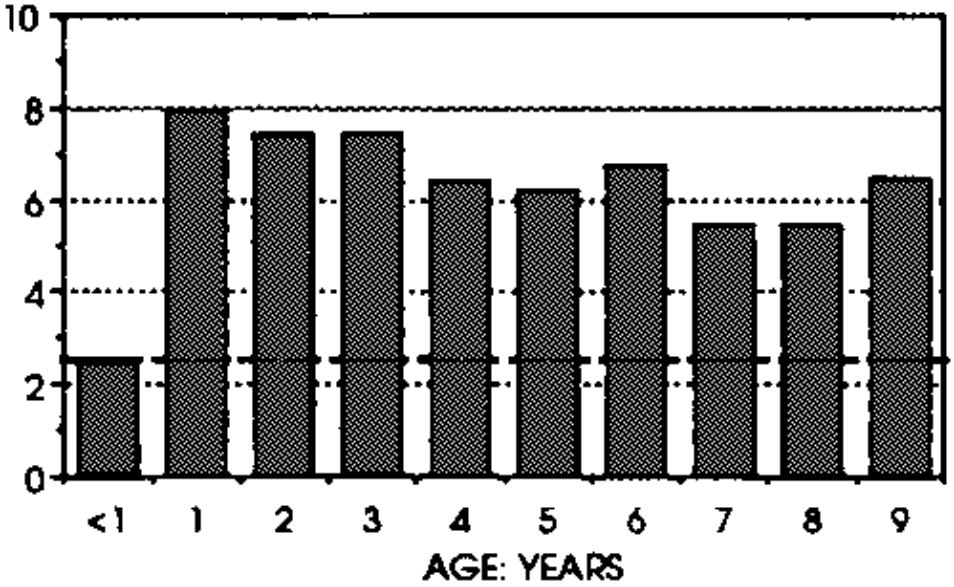


% PREVALENCE – Quarterly prevalence of above normal weight–for–height (>90 percentile Wt/Ht) in children aged under 15 years. Health Centre data.

ADDITIONAL PREVALENCE INDICATORS



% PREVALENCE – Prevalence of underweight (<–2 S.D. Wt/Age) in children aged 0–9 Years in 1981–82. Health Centre data.



% PREVALENCE – Prevalence of stunting (<–2 S.D. Ht/Age) in children aged 0–9 Years in 1981–82. Health Centre data.

4. TECHNICAL NOTES

The purpose in this report is to assess trends rather than levels of nutrition, and of selected likely determinants. Indicators were chosen with this purpose in mind. The major effort went into obtaining data on trends in prevalences of children underweight, as the main indicator of nutritional status widely available (see discussion in “First Report on the World Nutrition Situation”, FRWNS).

The indicators are presented in the country case–studies on two pages. The first page gives the same indicators for all countries, where available. The second page gives, at the top, sources of cereals (production, import, food aid), use of IMF credit, and the Food Price Index. On the lower part of the page, additional data may be given on child nutritional status. This is particularly relevant when only sub–national data are available, when the lower panel on the first graphics page is blank.

A brief description of the selected indicators and rationale for their choice follows.

Choice of indicators

The new data in this report concerns trends in prevalences of underweight children, or other measures of child nutritional status. All other indicators were directly compiled from data already available through the UN agencies. Three types of common indicators were sought: economic, food, and child nutritional status. Other health indicators were also investigated, as discussed below.

Economic indicators

Rapidly changing economic conditions in the 1980's have had profound effects on human welfare. Recession and structural adjustment, closely related to the burden of external debt in many countries, have interrupted progress or exacerbated underlying problems. One purpose of this update report was to further document the effects on nutrition. Two indicators were therefore selected, from World Bank publications (World Debt Tables, World Bank), to monitor debt. First, the debt service ratio (called “debt ratio” in the panels) is the debt repayment (interest and capital) divided by the value of the exports of goods and services: that is, it is a measure of the proportion of national resources used to pay for external debt. The higher the indicator, the greater the burden of debt. Secondly, the total debt is displayed, defined as debt outstanding and disbursed (called “debt outstanding” in the panels). This is cumulative through time. Both debt indicators are annual.

The estimate of gross domestic product (“GNP” in the panels) is included in a common indicator of the national economy. The value given is based on GNP estimates at constant 1980 prices in local currency[1]. This gives an indicator of economic performance, and average income available in the country.

[1] This indicator was unavailable for Bolivia, Chad, and Cuba, and an alternative version of GNP or GDP was used.

Exchange rates are given in the first pages of the panels, as an indicator in its own right, but also to indicate the points in time at which major economic adjustments were made –devaluation being a common feature of adjustment programmes. On the second page of the panels, use of IMF credit is shown: this gives some indication of when IMF– supported programmes were started and the scale of activity involved.

Many other economic indicators are available and relevant, and these can be readily looked up in such publications at IMF's “International Financial Statistics” (monthly), the World Bank's “World Debt Tables” and “World Development Reports” (both annual).

Food indicators

Food consumption by the individual is, with health, a direct determinant of nutritional status. Data on food consumption, even at household level, are rare cross–sectionally, let alone showing trends over time. As for income or expenditure on the economic side, indirect measures were sought. The indicators used estimate different aspects of food availability.

The Food Production Index, which shows relative levels of per capita food production annually, is included for two main reasons. Food production is not itself usually the major determinant of food consumption at national level (although it probably is for farmers producing food, whether for sale or home consumption). Nonetheless, food produced domestically is almost always the main contributor to food availability, as shown in the top left–hand chart in the second page of graphics. Thus, when interpreting changing food availability, changes in domestic food production are important; for farmers, including through income effects. Second, the food production index is for many countries a readily available indicator of the state of the rural economy. Where the food production index falls, a common explanation is drought, and this may be seen from the “unfavorable crop conditions/food shortages” chart within the food indicators. Botswana provides an example: in Botswana 1981 and 1982 were the last years, until 1988, to have adequate rainfall; the fall in the food production index in 1983 – 1987 is some indication of the effects of the prolonged drought. Similarly, the drought in Ghana in 1983 contributed to the crises in 1983/4, but here severe economic problems interacted with drought. Estimates of the food production index were supplied by FAO. A more detailed discussion of the definition is given in the FRWNS (p.44), and in the Supplement on Methods and Statistics (ACC/SCN, 1987, in press).

As cereals are the staple food in most countries, accounting often for 50–70% of kcals consumed, the indicator of cereal availability gives an idea of staple food supply at national level. Major changes in food supply have an effect, through prices and sometimes (though less often) through physical availability of food in the market, on food consumed and hence nutrition. This is particularly important in Africa, and in country after country we see that cereal availability declined sharply in 1983/84. Estimates of cereal availability were calculated from the data on domestic production, imports and food aid, (shown in the second page of the panels) provided by FAO.

The indicator of cereal availability should be seen with the top left–hand chart on the second graphics page, on sources of the cereals available. This breakdown of the cereal availability data into the components of production, imports, and food aid provides some important details on where staple foods are coming from, and illustrates responses to food shortage. It also gives a sense of the scale of the relative contributions to staple food availability. The lags in replacing food production losses are evident[1].

[1] Drought effects (in Africa) usually correspond with low points in production – of the many examples, Lesotho and Mali provide illustrations. Generally, it is not until the year following the drought that imports have begun to climb to cover the deficit. Often it is two years after the drought that food aid responds fully, and by this time production may have been re–established.

Reports of (a) “unfavorable crop conditions” and (b) “food shortages”, as available at the time, are taken directly from reports of FAO's Global Information and Early Warning System. These are included only for Africa. In other regions, this panel is replaced by the food price index, discussed below. They are displayed as “Yes/No” variables, depending on whether a country was scored at that time as affected (a) by drought (occasionally by other factors such as flood or pests destroying crops), and (b) reports of food shortages. These indicators are included to document the course of drought, and as a rough indication of food problems.

Results from food balance sheet calculations are plotted, under the heading “kcals per day”, as a summary indicator of food available for human consumption. These results are related to cereal availability, since cereals provide much of the dietary calories in most countries. The calculations take into account all foods (produced, imported, etc.), other uses of food (e.g., seed, animal feed), and are standardized by population (the unit is average kcals/caput/day). Clearly they do not estimate distributional effects, and in times of difficulty the poor may suffer disproportionately as the equity of food distribution may worsen. Results from food balance sheet calculations were provided by FAO, and a fuller description of the method, and interpretation, is given in FRWNS, and its Supplement.

Purchasing power is a main determinant of household welfare. The relative price of food –food price index as a ratio to the general price index – is a readily available indicator of food purchasing power, at least for the vulnerable population that does not produce food. It is particularly relevant to the urban poor, who may be badly affected by economic adjustment. In fact, the often close correspondence (see Ghana for example) between the relative price of food and observed trends in prevalences of underweight children was a new finding during preparation of this report. For these reasons, the consumer (or general) price index (“CPI”) and the ratio of the food price index to the CPI (“FPI/CPI”) are included as indicators. These data are normally available monthly, reported to ILO, and were obtained from ILO's “Monthly Bulletin of Labour Statistics”. The food price index (“FPI”) is shown separately on the second page of graphics for African countries, on the first page for other countries.

Before discussing nutritional data, the issue of health indicators should be raised. These are included at present only for a few countries (e.g. diarrhoea incidence in Lesotho). One issue is the availability of monthly information, which is patchy; but more important in this context is that conceptually there is no summary health indicator available – except perhaps for child growth. Indeed, child nutritional status is considered a summary health indicator in WHO's monitoring of programme towards “Health for All”. For this report, including for reasons of time and resources, we decided to use disease incidence data illustratively (cf. Lesotho).

The indicator of “underweight children” (occasionally wasting or stunting) is the new feature here: all other indicators are available elsewhere, although not integrated in this way. **It cannot be too strongly emphasized that this indicator is not intended as a measure of level, but of trends in the population.** An estimate of the level of the prevalence of underweight children is given under the heading of each first page of country graphics. This estimate is taken directly from the calculations reported in FRWNS, in which definitions of the indicator and its calculation are given, (and in more detail in the supplement).

The indicator is defined as % of children, usually 1 through 4 years old, of less than 80% weight–for–age by NCHS/WHO standards. This definition may vary slightly between countries, but this is unlikely to affect estimated trends. Interpretation depends partly on the source of the data, as follows.

Health system–derived data

The sources of child underweight data are usually from health centres; details and methods of analysis are given in FRWNS. It should be noted that the results shown represent many millions of child weighings. Other

indicators, when available, are given in the lower parts of page 2 of the country graphics.

Data are presented, both including the seasonal effect and de−seasonalized (by the method given in FRWNS, p.62) to highlight underlying trends.

The major issues in the use of these data to describe trends revolve around the risk of changing selection bias between monthly data points. There is little direct check on this, but there are a number of reasons pointing to the likelihood that these results from health−centre data do reflect real changes.

First, all data obtained from health−centres in which there was selection into the weighing programme based on wt/age (known often as “medical selection”) have been excluded. The data are thus, at least, from a sample of all children attending the health centres.

Second, the results show remarkably consistent and explicable seasonal patterns. In almost every case, a peak of underweight prevalence precedes the harvest, falling again after the harvest. The fact that the peak prevalence may coincide with periods of high disease incidence in the rainy season (e.g. diarrhoea in Lesotho) only strengthens this finding. In some cases, such as Burkina Faso, a more complex bimodal pattern is seen; the late−year peak in fact may correspond to a time when food is being conserved for later needs when labour in the fields is intensive. In others, the post−harvest improvement disappears in times of drought: contrast Botswana in 1980−81 (non−drought years) with 1982 through 1987. In still other cases, such as Rwanda with more continuous rainfall and harvest, seasonality is much reduced.

Third, disaggregation of the data to sub−national areas continues to give both meaningful patterns, and differences that correspond to known events. For example, for Madagascar (see second graphics page), the results for the area around the capital (Antananarive) are compared with an area in the south. Not only are the seasonal patterns maintained with this disaggregation, but it can be seen that deterioration started later in the south, with the drought starting in 1985 − and indeed the seasonal pattern flattened (as in Botswana) in 1986. Similar graphs at area level appear meaningful, for example in Burkina Faso and Ghana.

A fourth thread of evidence supporting the validity of these data in assessing trends came from an unexpected source: close correlations with food price data. By simple inspection, the FPI/CPI ratio in Ghana shows a clear association with underweight prevalence values. Moreover, a few months lag between FPI/CPI changes and prevalence changes appear to exist. A similar picture is clearly seen in Togo, probably in Madagascar and Burkina Faso, and on more careful analysis in Botswana. This is a simplification of a complex situation, (for instance, opposite relationships might be expected for net food producers, or between urban and rural populations) and counter examples exist. But that results from totally independent sources should support each other in this way is highly suggestive that they are meaningful of some underlying reality.

Fifth, a formal check on the influence of one possible source of confounding, that is changing population coverage of health centres, has been done. For data from Burundi, Burkina Faso, Lesotho, Madagascar, and Rwanda, analyses taking account of changing coverage failed to show any consistent influence of coverage on observed prevalence − indeed, the changes over time were if anything sharpened (see Test et al, 1987)[1]. Less formal observation, for example in Ghana, shows that, although clinic attendance varied substantially over 1981−87, it did not show any obvious relation with prevalences. Thus, the explanation is at least not as simple, in the cases examined, as that more and worse−off people go to health centres in times of exacerbated need.

> [1] Test, K., Mason, J.B., Bertolin, P., Sarnoff, R., "Trends in prevalences of malnutrition in five African countries from clinic data: 1982 to 1985"; Ecology Food & Nutrition (accepted for publication).

Survey−derived data

Data from repeated surveys have been used where available to estimate trends. Here, too, problems arise and have been checked for (as far as possible) in drawing inferences on trends. The main issue again is comparability of samples over time. This comes down to the following.

First, the representativeness of each survey with respect to the same population needs to be assessed. Populations represented by the sample may differ in terms of geographic location, socio−economic status, and age/sex composition. Any of these may confound comparison. Sometimes, as in Indonesia recently, a second survey may usefully give priority to comparability of sample with a previous survey rather than change the population sampled, allowing useful inferences on trends rather than on population levels at one time.

Second, cross−sectional surveys at different seasons are hard to compare (unless there is an independent estimate of seasonal effects). This factor is often ignored if the representativeness issue is resolved, but should be kept in mind. In Madagascar, for example, as much as ten percentage points difference in prevalence is observed seasonally, compared with about a five percentage point year−to−year (de−seasonalized) difference.

Third, different standards and cut−off points may be used between surveys. This can usually be overcome by analysis, particularly if the original data are available.

In this report, a somewhat less rigorous approach than in the FRWNS has been taken. The FRWNS attempted to assess actual prevalence levels, as well as trends, whereas here only trends are investigated. Thus, for example for Bangladesh, although the source document itself trends are investigated. Thus, for example for Bangladesh, although the source document itself points out that four survey results at different times are not fully comparable, we have used the results as a probable indication of trends.

Mixed administrative and survey data

In some cases, for example in the Philippines, data points at different times are derived from both surveys and programme (health−system) sources. It was felt worthwhile to present the data together, but the inferences on trends are particularly weak in such a case.

APPENDICES

A. INTER−AGENCY FOOD AND NUTRITION SURVEILLANCE PROGRAMME

(Source: Guidelines on project proposal preparation for the Inter−Agency Food and Nutrition Surveillance Programme)

The Interagency Food and Nutrition Surveillance Programme (IFNS) is a joint initiative by the Food and Agriculture Organization of the United Nations (FAO), the World Health Organization (WHO), and the United Nations Children's Fund (UNICEF) to assist a large number of countries and regional institutions to establish and strengthen food and nutrition surveillance programmes over the next five years. It is being developed in response to an evident need for a renewed and concerted effort to strengthen food and nutrition surveillance systems in the light of the economic recession of the last few years and its associated negative effects, particularly on poor and vulnerable population groups. A recommendation for a $10 million noted project to support the establishment and strengthening of food and nutrition surveillance systems through the IFNS programme was approved by UNICEF's Executive Board at its May, 1987 session[1]. In January, 1988 the WHO Executive Board recommended the adoption of a resolution to support countries in establishing and making use of effective nutritional status surveillance systems in collaboration with FAO, UNICEF and other UN agencies[2]. The IFNS initiative was an outcome of the twelfth session of the ACC Subcommittee on Nutrition (ACC/SCN) in 1986 and has also been formally endorsed at its 1987 and 1988 meetings[3].

[1] UNICEF: Strengthening food and nutrition surveillance systems. (E/ICEF/1987/P./L.37), UNICEF Executive Board, New York, 1987.

[2] World Health Organization: Resolution of the WHO Executive Board: Infant and young child nutrition. EB. 81/R16 WHO, Geneva, 1988.

[3] ACC/SCN: Proposal for expanding nutritional surveillance. Report of the ACC/SCN Working Group on Nutritional Surveillance, (Document for ACC/SCN 13th. Session), 1987.

<u>Origins of the Programme</u>

Food and nutrition surveillance is the regular provision of information and its use for decision−making on policies and programmes which, directly or indirectly, affect nutrition. The original concept of surveillance came from the public health field where surveillance of infectious diseases plays an important role in prevention and treatment of disease. At the 1974 World Food Conference a resolution was passed recommending the establishment of a global surveillance system by FAO/WHO/UNICEF “to monitor the food

and nutrition conditions of the disadvantaged groups of the population at risk, and to provide a method of rapid and permanent assessment of all factors which influence food consumption patterns and nutritional status". This approach was established in international terms after the 1974 World Food Conference and a Joint FAO/WHO/UNICEF Committee in 1975 agreed on the general methodological basis for promoting such surveillance activities. By the early 1980's some 20 countries, many supported independently by the respective UN Agencies, were operating some type of food or nutrition surveillance system for the purposes of policy, programme planning and advocacy, and timely warning.

The practical aim of the IFNS programme is to extend these approaches to many more countries in a collaborative manner in order to make data on nutritional status and related food and nutrition information more available on a regular and frequent basis; and to encourage their use to guide economic and social policy making and planning in tackling food and nutrition problems and reacting to warning trends that may be revealed. The participating agencies have been supporting countries in the development of sectoral information and analysis from their respective vantage points and will continue to support these programmes to interpret and predict changes so that appropriate interventions can be undertaken.

There has also been an increasing recognition in the last few years of the devastating effects of economic recession on poor and vulnerable groups, especially children, and of the importance of ensuring that the current structural adjustment policies that governments are obliged to carry out are so designed that the potentially damaging effects are reduced to a minimum. Monitoring nutrition, particularly of vulnerable groups, is one of the best methods of assessing how people are being affected and how compensatory measures are working. This growing concern with the human dimensions of economic adjustment policies has underlined the urgent need to monitor changes in nutritional status in as many countries as possible. The nutritional status of young children is probably the most sensitive indicator of sudden changes in food security and health status, acting as an early signal of distress, ill health, famine and, eventually, death.

Goals and Objectives

The overall goal of the IFNS programme is to improve the survival and development of children, women, and other disadvantaged groups through the strengthening of government policies and programmes and community actions affecting nutritional status and development, aimed at protecting the vulnerable in times of stress and, in the long run, improving their overall welfare. This will be accomplished through strengthening food and nutrition surveillance and by encouraging policy−makers to use surveillance data on changes in the human condition as frequently as they use indicators of economic change in making policy decisions. An essential feature of the programme is that the data it produces shall lead to specific nutritional and other interventions and also be linked with current programmes in health, nutrition, agriculture, etc. in the country.

Within this broad framework the special focus of the IFNS programme is to encourage the regular and frequent reporting of a few common indicators in a standardized, simple and timely fashion in order to alert decision−makers to the presence of a problem, and to stimulate them to make use of further information in order to initiate appropriate action. The programme will also support surveillance systems in the broader context, appropriate to the country situation.

The specific objectives of the IFNS programme are:

a) To produce and analyze existing information on trends in a limited number of specified indicators of food and nutrition at national and sub national levels;

b) To promote the prompt use of this information for national programming and national and international advocacy;

c) To strengthen the institutional capacity of countries to produce, analyze and use food and nutrition data; and

d) To promote widespread recognition and use of this information at country and regional levels in the development of policies, plans and programmes.

B. GLOSSARY

(NB: Notes are ordered as presented in the graphics)

Under 5 mortality rate (U5MR): number of deaths of children under 5 years of age per 1,000 live births for a given year
Infant mortality rate (IMR): number of deaths of infants under one year of age per 1,000 live births for a given year.
GNP per capita: gross national product. Annual GNP per capita is expressed in current $US.
Estimated prevalence of underweight children: a brief description of the method used to estimate this figure (given at top of graphic) follows, a full account is given in the 'Supplement on Methods and Statistics for the First Report of the World Nutrition Situation', ACC/SCN, 1987 (in press). Estimates of the prevalence (proportion) and number of underweight children were calculated using, as a first step, data from surveys considered to be nationally representative, as given by WHO (Global Nutritional Status, Anthropometric Indicators. Doc. Ref. NUT/ANTREF/3/87, 1987), and from a previous compilation reported by Haaga, Kenrick, Test, Mason (An Estimate of the Prevalence of Malnutrition in Developing Countries. World Health Statistics Quarterly, 38, 331–347, 1985). Underweight is defined as less than 2 standard deviations (SD's) of weight–for–age, using NCHS standards, as adopted by WHO. Estimates refer to the 0–60 month old population. An equation for interpolation by country and year was calculated by regressing these estimates on other selected independent factors. The model thus developed was then applied to the complete set of countries covered in the 'First Report' to estimate their prevalence of less than 2 SD's weight–for–age. This was done for three time points: 1975, 1980 and 1984. The regression method was necessary because representative prevalence estimates of malnutrition were not available for most countries covered by the 'First Report', nor for more than one or two different years in any one country. Each country's predicted prevalence was weighted by the 0 through 4 year old child populations, for the three years of interest. This gave the number of 0–4 years who were underweight; dividing this by the total child population for that country gave estimates prevalences underweight. The country estimate has been given as a range at the head of the graphic.
Debt Ratio: this is the ratio of total debt service on public and publicly guaranteed long–term debt to the export of goods and services. Expressed as a fraction.
Debt: debt outstanding and disbursed. Public and publicly guaranteed long–term debt outstanding and disbursed. Expressed as US$ millions.
GNP: gross national product. Gross domestic product at purchaser values (market prices) plus net factor income from abroad. Expressed in millions of local currency units at constant 1980 market prices.
Exchange rate: expressed as US$ per (usually) 1,000 units of local currency.
Food Production Index: per caput. This index shows the relative level of food production in a year compared to the average for the base period 1979/81. Thus the 1979/81 value is always 100 on the graph, marked with a line. The index is “... based on the sum of price–weighted quantities of different agricultural commodities produced after deductions of quantities used as seed and feed weighted in a similar manner” (1986 FAO Production Yearbook, Vol. 40, FAO 1987). Food production includes all commodities considered edible and containing nutrients (e.g. this excludes coffee and tea).
Cereal availability: calculated as sum of the annual production corrected for loss due to milling, plus commercial cereal imports, plus cereals imported as food aid. Expressed in units of 1,000 metric tons.
Unfavourable crop conditions: refers to unfavourable prospects for current crops, whether due to area planted or adverse weather conditions, plant pests, diseases and other calamities which indicate a need for close monitoring of the crops for the remainder of the growing season. This information is gathered by FAO as part of its global early warning system on food and agriculture.
Food shortages: refers to exceptional shortfall in aggregated supplies or a local deficit as a result of crop failures, natural disasters, interruptions of imports, disruption of distribution, excessive post–harvest losses, other bottlenecks and/or increased demand for food arising from population movements within the country or an influx of refugees. This information is gathered by FAQ as part of its global early warning system on food and agriculture.
CPI: consumer price index. Base year is 1980

FPI: food price index. Base year is 1980
IMF credit: use of IMF credit in US$ millions.
Trends in Prevalence: Monthly or annual trends in the percentage prevalence of anthropometric indicators. The choice of cut–point varies from country–to–country and due caution must be exercised if inter–country comparisons are been made. Where possible, a guide line has been added to show the expected prevalence level corresponding to the given cut–point. For example, if the cut–point is set at <–2 Standard Deviations below the median of the reference curve, then the expected percentage would be 2.5% for a normal or Gaussian curve.
Prevalence Deseasonalized: Where monthly prevalence time series are available, the original data have been decomposed into seasonal, trend and level components. To provide a clearer picture of the changing level of prevalence over time, the de–seasonalized series has been graphed. The method used to generate the smoothed series is explained in the Appendix to the First Report on the World Nutrition Situation.

C. MAIN DATA SOURCES

Under 5 mortality rate (U5MR), Infant mortality rate (IMR): United Nations Population Division and the United Nations Statistical Office; provided courtesy of UNICEF.
CPI, FPI: Bulletin of Labour Statistics, 1984 and 1986, 1988, ILO, Geneva. Also IFS Supplement on Price Statistics, 1986, International Monetary Fund.
GNP: World Bank Tapes, 1987. Courtesy of ILO, Geneva.
GNP per capita: World Development Report 1988, The World Bank, OUP, 1988.
Debt Outstanding and Disbursed, Debt Ratio & Use of IMF Credit: World Debt Tables 1986–87 Edition, The World Bank, 1987.
Exchange rate: International Financial Statistics, The International Monetary Fund, 1987.
Food Production Index, Cereal availability, Unfavourable crop conditions, Food shortages: FAO AGROSTAT Tapes, Reports on Foodcrops and Shortages, FAO, Rome.

Sources of anthropometric and other country data[1]

[1] Most of these were commissioned by ACC/SCN or otherwise written specifically as background for this report.

Africa:

Benin: Catholic Relief Services/Ministry of Labour and Social Affairs.

Botswana: Family Health Division, Ministry of Health.

Burkina Faso: Catholic Relief Services/Ministry of Health.

Burkina Faso: Ministere de la Sante et de L'Action Sociale, “Rapport sur la Situation Nutritionnelle et Alimentaire au Burkina Faso”, October 1987.

Chad: Guha–Sapir, Lechat, M., “Risk Factors and Vulnerability of Children to Drought Related Famines: The Case of Chad”. Unpublished report.

Ethiopia: Appleton, J., “Nutritional Status Monitoring in Wollo, Ethiopia, 1982–1984 – An Early Warning System?”, Save the Children Fund (UK). Other NGO sources.

Gambia: Nutrition Unit, Medical and Health Department, “Report on the Feb./March 1988 National Nutrition Surveillance Programme for 0–5 Year Olds”, August 1988, and “Report on the Aug./Sept. 1987 National Nutrition Surveillance Programme for 0–5 Year Olds”, February 1988.

Gambia: Cole, T., “Maternal Weight Changes over 10 Years in West Kiang, The Gambia”.

Ghana: Catholic Relief Services/Ministry of Health.

Lesotho: Catholic Relief Services/Food and Nutrition Coordinating Office.

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