

GOVERNMENT COLLEGE
ECONOMIC JOURNAL

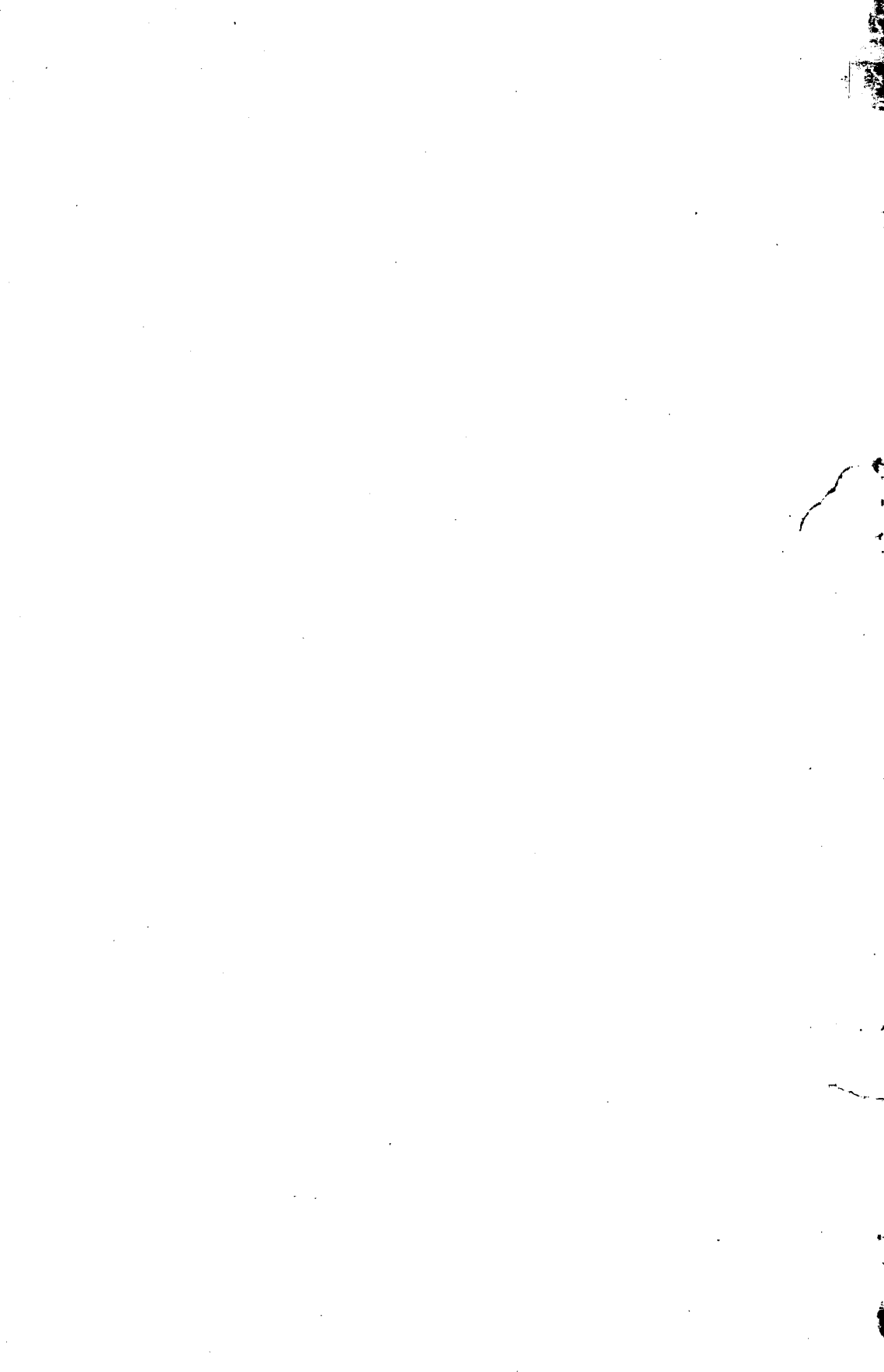
VOLUME XIII

1980

NUMBER 1 & 2

-
- ▷ REAL WAGES, GROWTH, INFLATION,
INCOME DISTRIBUTION AND
POLITICS IN PAKISTAN, INDIA,
BANGLADESH, AND INDONESIA ... 1
—*G. F. Papanek*
- ▷ STRATEGY OF EXPORT-LED GROWTH
WITH SPECIAL REFERENCE TO
PAKISTAN ... 40
—*Dr. Ziauddin Ahmad*
- ▷ CLIMATE, FOOD AND POPULATION :
PROSPECTS FOR A MANAGEABLE
FUTURE ... 61
—*Walter Orr Roberts*
- ▷ TAX-POLICY AS AN INSTRUMENT
OF ECONOMIC GROWTH WITH
SPECIAL REFERENCE TO PAKISTAN ... 94
—*A. S. Khalid*
- ▷ ECONOMICS AND HEALTH
PLANNING ... 114
—*Shahid Tanveer*
- ▷ BOOK REVIEW ... 125
—*Khalid Aftab*
-

DEPARTMENT OF ECONOMICS
GOVERNMENT COLLEGE, LAHORE - PAKISTAN



Real Wages, Growth, Inflation, Income Distribution and Politics in Pakistan, India, Bangladesh, Indonesia*

G. F. Papanek**

A. The Effect of the Rate of Growth on Income Distribution and Real Wages.

Pakistan's disintegration as a state in 1971 was an occasion for drawing conclusions about the linkage between economic development strategies and political consequences. The argument was made that since the development strategy followed by Pakistan led to political disaster, those who want to avoid these consequences had better avoid the strategy as well.¹ The conclusions drawn by several analysts from the experience of Pakistan, Indonesia and Bangladesh, in somewhat oversimplified form, can be stated as follows :

- (i) In a mixed economy, with heavy reliance on private enterprise, policies and programs to achieve a high rate of economic growth also result in a deterioration of income distribution and no improvement in the absolute income of the poor.

*Work for this paper was supported by the Agency for International Development under Grant No. AID/OTR-G-1525. I am grateful for this support. Data were collected and analysed by Mohammad Fahim Khan for Pakistan and by Syed Samad for the other three countries. David Wheeler provided advice and guidance particularly on the econometric work. This paper is the result of a joint effort of the four of us. However, the actual language used is mine. Naturally everyone, most notably including AID, is absolved from responsibility for paper content and errors.

**Chairman, Department of Economics, Boston University Boston (U.S.A.)

1. e.g. K. Griffin and A.R. Khan, *Growth and Equality in Pakistan*, (McMillan, 1972) : "... faster growth ... (in) Pakistan and India, ... has actually led to an absolute decline in the standard of living of the urban and rural poor" (In Pakistan) "... the fact of growing inequality, have led ... to the declaration of an independent Bangladesh." (pp. ix-x). "The concentration of income and wealth in the hands of the rich has been a key ingredient in (Pakistan's) development strategy" (p. 200). In Pakistan "... the standard of living of the majority has declined ..." (p. 204). (Courtesy) Planning and Development Board, Punjab, Lahore.

- (ii) With the rich becoming obviously richer and the poor experiencing no improvement, political and social tensions are bound to rise, resulting in serious political difficulties for the government in power.

1. Destabilizing Growth ?

A superficial look at the experience of the four countries supports these conclusions. Riots broke out during the late 1960's in Pakistan and Bangladesh (then East Pakistan), and in 1973/74 in Indonesia, at the end of a period of rapid growth. The riots had economic grievance as a major focus and justification, with criticism specifically centered on neglect of the poor, the presumed deterioration in income distribution and increasing concentration of income, wealth, and power. In India, on the other hand, the Congress Party, which had been in power during twenty five years of virtual economic stagnation, registered its great electoral triumph at the same time that Pakistan was disintegrating. Indonesia and Pakistan (including Bangladesh) during their periods of stagnation seem to have experienced few political disturbances based on economic grievances.

On the face of it, one can therefore make a plausible case that there is indeed a conflict between economic growth and equity in these important countries. Emphasis on growth seems to have led to neglect of the problems of both absolute poverty and income distribution and therefore to political difficulties.

2. Income Distribution and the Rate of Growth

In fact, the overall indicators of income distribution do not support the argument that policies and programs which made for rapid growth in these four countries also resulted in less equal income distribution. If anything, they suggest the opposite.

TABLE 1
Changes in Income Distribution with Changes in Economic Growth
(% change in Gini Coefficient)

	Rapid Growth (+4 to +6.5% (1960's))	Stagnation (+2 to +3% (1960's))	Deterioration (-4 to +2% (1970's))
Bangladesh	-10 to -25%	—	+60%
India	—	0% to -7%	—
Pakistan	-10% to -16%	—	+3% to +6%

Source : See Tables 1 in Appendix

N.B.—A decline in the Gini Coefficient means a more equal income distribution.

Since population growth is between 2.5% and 3%, a growth rate of 2-3% means stagnation in per capita income. Various series show Indian income distribution slightly improved or unchanged over the decade for which data are available, during which per capita income stagnated. Pakistan and Bangladesh show a distinct increase in equality during the 1960's when national income increased substantially more rapidly than population. On the other hand, when per capita income dropped after 1970 in Bangladesh and after 1973/4 in Pakistan, income distribution became distinctly less equal.

But these overall indices are not very reliable. For Pakistan and Bangladesh the conclusion on deterioration in the 1970's is based on a single year and, in the latter case, on rural income distribution only. Since it is clear that there are annual fluctuations, one year does not provide very persuasive evidence. For India, it is not clear that different series are consistent and the conclusions are heavily dependent on the initial and terminal years selected. (See Appendix Tables 1). For Indonesia there are no worthwhile data on changes in income distribution and even for the other three countries the margin of error is undoubtedly large, the really rich do not answer income questions honestly for fear of the tax collector and the really poor are often not interviewed if they have no stable residence.

Still, these data at worst :

(a) do not support the belief that income distribution became less equal in Pakistan and Bangladesh during periods of rapid growth.

(b) do not support the argument that income distribution was less equal in Pakistan and Bangladesh than in India at the time of the political disturbances in the late 1960's. (See Appendix Tables 1A and 1B)

(c) do suggest that income distribution became *less equal* during the period when the economy deteriorated in Pakistan and Bangladesh.

So the overall data do not provide support for the widespread belief that there is a negative relationship or trade-off between growth and equality, at least with respect to three large Asian countries.

3. Real Wages and the Rate of Growth

More reliable data, for more years are available for real wage rates, that is the purchasing power (wages adjusted for changes in the cost of living) of workers. For all countries the wage data cover not only industry, but also wages paid in agriculture and, for some

countries, also wages in construction and other urban informal sector activities. Therefore changes in real wages tell something about the income of a large proportion of the poor. Of course, wage statistics do not directly indicate what happened to the income of welfare-type families (beggars, handicapped), and the important group outside the money economy, but even for the latter they provide an indication of changes in income. In all four countries there is a large group of small-holders in agriculture who cultivate their own land and also work for wages, at least during some seasons. Similarly, some of the self-employed in service or trade occupations will move between self-employment and wage employment in response to differences in income between the two. So if wages go up it is usually an indication that the incomes of small-holder farmers and of other self-employed have also risen, or the wages would rather soon be driven down by the increasing shift of the self-employed to wage employment. The relationship between changes in average product per person in agriculture and changes in real wages, (see below) supports the notion that movements in real wages reflect changes in the incomes of small-holders. Similarly, the consistent movements among wages in urban areas - for instance among construction, casual, and industrial workers - indicates that wages also reflect incomes in the urban informal sector.

The data which follow are largely for the unskilled and therefore the relatively poor. That fact, plus their widespread coverage (rural, industrial and urban informal) and consistency with other data on the income of the rural small-holder makes it possible to use wage data for inferences on the income of the poor.

Real wages data confirm and strengthen the conclusions one can draw from more scattered income distribution data that rapid economic growth is usually, but not always, favourable for the absolute income of the poor and does not normally result in a decline in their relative income. Real wages generally rise during periods of rapid growth, stagnate during slow growth and drop sharply when the economy deteriorates.

TABLE 2

Changes in Real Wages with Changes in Economic Growth Rates

	Rapid growth (+4 to 8%)	Stagnation (+2 to +3%)	Deterioration (-2 to +2%)
Banladesh	+11 to +27%	0	-10 to -30%
Indonesia	+54 to 114%	—	-34 to -67%
Pakistan	+6 to +16%	—	-9 to -24%
India	—	-13 to +7%	—

Source : See Tables 2-5 in appendix.

N.B. (a) Growth rates are total growth. With population increasing 2.5 to 3% a growth rate of 2.5 to 3% means stagnation in per capita income.

(b) Average wages for several years are compared to minimize random fluctuations. Only major series, not single firms generally used. See Appendix Table 2-5 for specific years and series used.

Moreover in general the more rapid the rate growth, the more rapid the increase in real wages. For instance, real wages rose about 3% a year in Bangladesh, where per capita income was increasing only 1.5% per year, while in Indonesia, where per capita income was increasing 5% a year, real wages rose 15% a year. In addition rapid growth in the wage-paying sectors normally also raised employment more rapidly. The manufacturing sector in Pakistan, for instance, increased employment by about 7% a year during its period of rapid growth in the 1950's and by 10% in the mid '60's. When sharply higher wage costs and disturbances occurred in the late 1960's employment declined by 10% in one year, followed by another temporary 15% decline with the disturbances of 1971-72.

Of course, factors other than the growth rate play a role in determining changes in real wages and in employment, among them government policy. As a result of these other factors, discussed below wages seem to have stagnated in Indonesia in the 1970's despite continued rapid growth and rose in Pakistan in the early 1970's despite slow growth. But on the whole it appears that in these four countries the more rapid the rate of growth the more rapid the increase in real wages.

4. "Surplus" Labor and the Average Product in Agriculture.

That real wages rise with more rapid growth is surprising, since all four countries are likely to have "surplus labour" and the essence of "surplus labour" in most recent discussions of the phenomenon (the Fei-Ranis model) is that there is an unlimited supply of labour for the wage-paying sector at the prevailing wage. As soon as the wage rises slightly additional workers flood and prevent a significant or continuing rise in real wages.

But if one accepts the original hypotheses of W. Arthur Lewis one can readily see why rapid growth usually, but not always leads to higher real wages. In the Lewis model surplus workers were family members in agriculture, not needed to produce the output of the family farm, but still fed, clothed and housed by the family. (They received the average product even if their marginal product was close to zero). They therefore would not take a job for wages unless the pay equalled their self-employment income, that is their share of the product of the family farm, adjusted for differences in the cost of living and for differences in the attractiveness between working for wages or on the family farm. But as soon as the wage rose above their adjusted share on the family farm they would very quickly join the wage labor force. If one accepts this picture, then real wage should rise whenever the average product in agriculture increases. This would happen if agricultural output increased more rapidly than the number of people who share in it. When the average product in agriculture rises, then the "reservation wage" of the self-employed in agriculture will rise as well, those who share in the income from the family farm will not accept wage employment unless the wage also rises. Any new factories or businesses set up will have to pay a higher wage if they want to attract workers away from family farms, since the workers' income has increased with agricultural output.

Then there is a rather simple explanation why a rapid rate of growth in the four countries means an increase in the real wage. Agriculture contributed between 30 and 60% of the national product directly and at least another 10 and 20% indirectly through its impact on trade, services, construction, government and industry. Therefore in general, a high-growth rate in agriculture, by raising the average product, increases the reservation price of farm family labor and can therefore force an increase in the compensation which the wage paying sector needs to provide to attract this labor.

There is considerable support in the statistical analysis for the argument that changes in the average product in agriculture produce corresponding changes in real wages. (see section 3c to 3e Appendix.) On the other hand the statistical relationship between the annual rate of growth (in the National Product) and wages becomes quite weak, and once one has taken account of the effect of rising average agricultural product on wages. It therefore appears that it is primarily the effect of average agricultural product on the supply of labor which affects wages, not the increase in demand for labor, influenced by the rate of growth.

5. The Wages of the Landless and Informal Sectors Workers.

Even if one accepts that land-owing farm families divided their income among all family members, although the labor of some is not needed, the question remains what keeps up the income of the landless and the workers in the informal sector (shoe shiners, barbers, hawkers and peddlers, rikshaw pullers, prostitutes, casual workers, scavengers, etc.) If some of them are also "surplus"-contributing little or nothing to output or convenience - why do their wages not drop to equal their (low or zero) contribution to output, until their incomes becomes so low that Malthusian factors, i.e. starvation, bring a new balance? (That is their marginal product is close to zero why is their wage not also close to zero?) There are three possible explanations :

(a) The surplus labor phenomenon is limited to land-owing families, the number of landless rural workers and urban informal sectors workers is sufficiently limited so they do contribute significantly to output and receive a wage to income equal to their contribution (their wage equals their marginal product).

(b) There is a work and income sharing system for the landless and informal sector workers enforced by social sanctions and informal organization which assures that no one lowers the price of their labor and all share in the income available from their activity (i.e. although their marginal product is close to zero, their income is close to the average product). For instance there may be 100 landless laborers in a village or rikshaw pullers in a neighborhood, each working an average of 15 hours and earning 40 rupees. All would be quite willing to work 30 hours for 50 rupees, but then half of them would starve. Village custom which attaches particular workers to particular landlords, or the informal organization of rikshaw pullers who

all come from the rural area, assure that all share in work (and income) at the accepted wage of 40 rupees and that no one gets more work for more total, but less average, pay by lowering his price.

(c) The landless and informal sector worker have discovered, by trial and error that they will only have a limited amount of work and charge enough per day worked (or shoes shined, or miles travelled) to survive with that amount of work. No one lowers the price, even if there is no informal work and income sharing organization, because they know others will follow suit and the result will be starvation for many, possibly including the one who started the price cutting.

The three explanations are not inconsistent and could operate simultaneously to keep wages or income of landless and urban informal sector workers roughly at the level of the average product in an activity, even if the workers are truly 'surplus' that is there are more workers than needed (their marginal product is zero). There is evidence that people in particular occupations tend to come from the same geographic area and have evolved a social mechanism for allocating territory and avoiding clashes, that is for avoiding price competition.² The allocation of territory can be physical or a queuing arrangement, which gives everyone accepted a share of the business or activity and therefore a share of the income. The result would be that the earnings of the self-employed, instead of being bid down by competition, are maintained at a level at which everyone earns enough in total (wage times turnover) to survive, or to provide no incentive to return to the family farm.

Then there is another reason why a higher rate of growth can raise the income or wages of the poor in the informal sector: as the total income they share rises, because there is increased demand for their services, their average income also rises under work and income sharing. Moreover, with more jobs in the formal sector, again raising the average income in the informal sector. For instance, with rapid growth more persons may patronize rikshaw pullers. If simultaneously some of the pullers have gone off to work in factories, then a smaller number share the increased business and their income will rise for both reasons.

2. See G. F. Papanek and D. Kontjorojakti, "The Poor of Jakarta", *Economic-Development and Cultural Change* (October 1975).

The landless may benefit from another effect. As average product in agriculture increases their wage or income may go up if it is related to the size of the harvest, as it clearly is in some traditional Indonesian harvest practice and reportedly also for the retainers performing traditional services in South Asia.

As the income of the landless and informal sector workers rises their reservation wage also increases. That is, some will no longer be willing to move into the formal or commercial wage paying sector unless the wage paid there also increases. As long as there is substantial movement among the different labor markets—family workers on farms or in businesses, landless agricultural workers and sharecroppers, informal sector workers whether self-employed or employers—this movement will, usually with a lag, keep wages and income generally rising and falling together in different activities. The effect of rapid growth in raising the average income, and reservation wage, of landless laborers and informal sector workers, will then tend to raise wages throughout the economy.

6. Other Effect of Growth on Real Wages

Rapid growth (or deterioration) in the economy can also influence real wages for other reasons, especially in the short term :

(a) With rapid growth, demand for many products will increase rapidly! If employers consider the increased demand to be permanent, they are likely to hire additional workers at the prevailing wage, primarily increasing employment. However, if employers are uncertain whether the increase in demand will continue, they may prefer to increase the wages of their present workers, paying overtime or bonuses to obtain additional work because :

- there are hiring costs for new workers.
- there are familiarization costs for them.
- it may be difficult to fire them later if demand drops (e.g., for several years the Pakistan Government made dismissals almost impossible).

With rapid growth, some employers will always be operating on an overtime basis, raising real wages, while others will be hiring more workers. (The former operate on the inelastic short-run supply curve, the later on the highly elastic long-run curve).

(b) With increased demand and profits as a result of growth, the cost of strikes, sabotage or just slow work on the part of the workers increases. Therefore employers have a greater incentive to increase wages to avoid such workers' response, even if they can replace the reluctant workers at the prevailing wage. They may prefer to pay somewhat more to avoid labor turnover costs and temporary disruption.

(c) Employees may have in mind a "fair" wage which is related to employers profits. With higher profits, they may demand a higher wage, either through their trade unions (India) or by pressure without formal unions (in the other three countries, unions were banned or ineffective during periods of rapid growth).

(d) Employers too may believe in a "fair" wage, related to profits, or they may have objectives other than profit maximisation which they can indulge more readily when the enterprise is profitable. Employers may always prefer workers that smile to workers who spit, but when business and profits are bad because the economy is stagnating they may not be able to indulge this preference. When profits are high they can afford to do so and may also feel a moral obligation to have workers share in the good times.

It is difficult to demonstrate the presence of these factors making for higher wages in periods of rapid growth-overtime instead of additional workers, higher wages to avoid disruption, and employer and worker belief in a "fair" wage.

They are all related to profits, not to economic growth as such. One would need data on profits for individual firms to demonstrate that when profits are high wages are raised for any or all of the above reasons and then to show that profits rise with the rate of growth. Both are plausible, but profit data for individual firms are not available to provide empirical support. However, the slight indirect evidence which is available is marshalled in the Appendix.

(e) One other relationship between the rate of growth and real wages is more clear cut and demonstrable: when the wage paying part of the economy deteriorates badly, real wages drop. Output declined in Indonesia, from the mid 1950's to the mid 1960's, in Pakistan after 1973/4 and in Bangladesh after 1970/1. In all three countries labor had considerable political and economic strength during the period of deterioration, in part because the populist governments then in power wanted to maintain labor support. Government

pressure, or government decisions with respect to public enterprises, could force the hiring of additional workers. In Bangladesh industrial employment was increased by more than 50% in one year (1972/3 to 1973/4) and by a further 20% in the next two years. Even over the previous high water mark the increase was over on third by 1975/6 despite a decline in output over these years. In Indonesia, plantation employment increased by almost 25% from 1955 to 1963 per hectare harvested, by 17% in total. But in neither country, nor in Pakistan, could worker's political power, or government pressure, keep real wages from dropping. The resources were simply not available.

When the income of the enterprises declined because the needed imported inputs were short, or supplies were disrupted, or management was poor or demand had declined, or strikes disrupted production, the costs had to be borne either by the public treasury : or by the managers of public enterprises, the owner for private firms : or by the workers : or by all three. Part cost was always borne by the public in the form of direct or indirect subsidies (e.g., through constantly expanding credit from the nationalized banks). But when government was unwilling or unable to provide enough a subsidy, the government managers or private owners usually could defend their interests better than unskilled workers. In all three countries workers eventually saw their wages decline. If government pressure had expanded the labor force the decline in wages was especially severe, since a declining wage had to be shared among more workers.

This decline in real wages could be brutal. In Indonesia plantation employment increased by 17% but real wages declined by over 60%, so the total compensation to labor decreased by almost half.

In Bangladesh, the increase of about 40% in manufacturing employment, accompanied by a 50% decline in real wages, meant an essentially unchanged wage bill. The industrial workers and his family always felt the decline in wages, while the increase in employment might benefit another family. In Pakistan the decline in real wages in industry was "only" a bit over 20%, but employment seems also to have decreased by 6 to 20%. The total wage bill may therefore have decreased by 25-35%.

To some extent the declining wages were compensated by increased services (education, housing, health) provided by the populist governments then in power. Moreover, the times of declining real wages

were often also times of greater opportunities for diversion to personal use of inputs and outputs, secondly jobs could more readily be taken by workers since some had little to do in the overstaffed enterprises—except collect their pay, and some workers' families undoubtedly benefitted from an additional wage earner when employment was expanded. But the decline in worker' income nevertheless was a brutal one. A 20 to 30% decline in an already very low income (say \$ 5 a month for Javanese plantation workers in 1969 prices) is not easy to absorb.

Why then did the workers not return to self-employment, particularly in agriculture, when the wages dropped sharply? There may be a ratchet effect here, with movement into the wage earning sector relatively easy, movement out relatively difficult. Extended families will be more reluctant to see a return to the family farm by the wage earner and this immediate relations, since that depresses everyone's income, than they were to see him leave to take wages employment years ago, with increased income the consequence. Moreover, technology can have changed in the meantime when the wage earner moved away, a machine may have been substituted for him and even his previous work may no longer be there. Many city families regularly visit their home villages and even work there in some countries³. Those who do are usually the urban self-employed often bringing funds from the city. This is obviously quite different from a situation where low wages exert pressure on large numbers of wage earners to move back to their villages requiring full support for extended period. Finally, there are, for some families at least, severe displacement costs. As wage earners, they have access to schools, health facilities and steady income which self employment does not provided. In Bangladesh there was, in addition to these general reasons, a deterioration in security in the country-side at the same time as the wages declined.

For all these reasons, it is difficult to return to the village, to subsistence agriculture, and to a share of the output of the family farm, when real wages drop in the city, especially if the drop is believed to be temporary. The lag in return movement seems to be even higher than in migration to the city when wages rise. And if the decline in the wage-paying part of the economy is a

3. See "The Poor of Jakarta" *op. cit.*

severe one, the needed reverse migration may be so massive that it just does not occur fast enough to equilibrate real wages and average product in agriculture.

In any case, it is clear that in three of the four countries, very severe reductions in real wages occurred over three to ten years as a result of a deterioration in the economy.

7. Why Does Growth Raise Wages—A Summary, Evidence and Policy Implications :

Several reasons have been given why the rate of growth and real wages increase and decrease together :

(a) The rate of growth in these four countries depends heavily on the rate of growth of agricultural output : as agricultural output increases more rapidly the average product in agriculture rises : family members who share in the average product of family farms then raise their reservation wage, the income they require to accept wage employment, and reduce the supply of wage labor until wages or income in non-farm occupations rise.

(b) Landless laborers and share croppers, to the extent they share in the output of agriculture, also raise their reservation wage when agricultural, output per worker increases.

(c) More rapid growth can raise the demand, and therefore the income, of the informal sector (e.g: peddlers) and decrease the number of people in the sector. As the average income of people in the informal sector goes up, so does their reservation wage—the wage that the formal sector has to pay to attract workers.

(d) More rapid growth can increase the demand for the output of the formal sector. If employers are doubtful that the increased demand will continue they will be reluctant to hire additional workers, because of turnover costs and the difficulty of dismissing workers. Instead they may pay overtime and bonuses to get more output from their current workers, raising the average wages.

(e) More rapid growth will increase the profitability of many enterprises, and can raise wages because :

- the cost of worker dissatisfaction can be higher.
- workers may have a notion of a “fair” wage related to profits and be dissatisfied if not paid more when profits rise.

— employers may also feel an obligation to pay a "fair" wage, or may prefer a higher wage for other non-economic reasons, and profitability allows them to indulge that preference.

If wages rise with a rapid rate of growth for these reasons, then it is possible for wages to stagnate despite high growth if:

(a) the growth is due to activities which create few jobs, so that most additions to the labour force are not absorbed in the formal sector but are forced into the informal sector. If the number of people in that sector increases more rapidly than its total income, this will drive down the wage or income per person and therefore also the reservation wage.

(b) the work and income sharing mechanism breaks down widely, particularly in agriculture. Some landless laborers and sharecroppers, who previously participated in agricultural income although their work was not really needed, would then be forced to join those scrambling for a living in the informal sector, reducing average income and the reservation wage.

Finally, the relationship between growth and real wages exists also on the downward sides. When economies experience severe deterioration in the commercial, wage paying sector, the enterprises in that sector may simply not have the resources to pay the same real wage as before. Their workers may, however, not be able to return to self employment, especially on family farms, even if the average income there is now higher than their wage. The result can be, and was, a brutal decline in real wages in Indonesia in the early 1960's and Bangladesh and Pakistan in the early 1970's.

Only parts of this description can be supported by the data. A relationship between the average product in agriculture and the real wage is reasonably clearly established, (Appendix sections 3c-e) lending some support to the notion of a reservation wage in agriculture. That a deterioration in the economy leads to a decline in real wages is quite obvious. Rigorous support for the other argu-

-
4. An interesting discussion of the work and income sharing mechanism in a different context is in Harvey Leibenstein "X-Efficiency Theory, Conventional Entrepreneurship, and Excess Capacity Creation in LDCs" in *Essays on Economic Development and Cultural Change in Honor of Bert F. Hoselitz* (ed. M. Nash).

ments is generally lacking. However, they are plausible and they do explain why wages did not rise in Indonesia between 1970 and 1976 despite a rise in average agricultural product.

The policy implications of this picture are clear. First, the relationship between average product in agriculture and real wages adds another, and powerful, consideration to other arguments for priority to agricultural development. In the four labor surplus economies examined, wages in many sectors of the economy seems to rise with average agricultural output. Since wages earners are among the lower income groups, if one includes those who work in agriculture, construction and the informal sector, an increase in average agricultural product appears to be an effective means for raising the income of important groups of the poor throughout the economy.

More broadly, rapid growth of the national product appears to be favorable for wage earners while a disruption of the wage economy can seriously hurt workers. In all three instances examined the disruption was due at least in part to populist measures designed to benefit workers. But the wage earners consistently paid a price, at least in terms of wage income, whenever the economy was disrupted by such populist and nationalist policies as widespread and abrupt nationalization, sharp increases in the level and coverage of the minimum wage, the rapid expansion of military expenditures and encouragement of class conflict. Whether the populist and nationalist measures, if consistently carried out over a longer period, would have been beneficial to this group of the poor one cannot say. Nor does this paper examine the benefits to wage earners from other measures of these regimes: the expansion of access to education and health services, and tenure reform, or the important increase in respect and in self respect, which some of these government provided. And, of course, there are development strategies which differ from the alternatives examined.

It is not really surprising that in a time of shortage, the managers (whether public or private), the remaining capitalists, the civil servants allocating scarce resource, the professionals, the military, and the land owners were all better able to protect their incomes against deterioration than the workers. Among the workers, the

organized ones fared better than the unorganized ones in the modern sector, who in turn fared better than those in the informal sector. But all workers suffered from the deterioration in the economy in countries whose elite was drawn from non-working classes groups. Therefore, at least under the circumstances prevailing in the four economies, policies which disrupt the economy had a cost for workers, policies which increased the rate of growth generally benefitted them. Rapid growth then was not an alternative, but a contribution, to greater equity.

If, as suggested, real wages are affected by growth in part because wages are influenced by the average product in the informal sector and the strength of the income sharing mechanism in that sector and in agriculture, then several other policies follow :

- the provision of employment in the commercial, modern sector not only increases the income of those who obtain the jobs, but also of those who remain in the informal sector. The fewer the number in the informal sector, the higher their average product, therefore their income and reservation wage. The effect of labor intensive industry, like the effect of increased agricultural output, is therefore felt throughout the economy ;
- conversely, if wages in the modern sector are raised by fiat the benefits to the modern sector need to be measured against the losses of other workers, whose average product and reservation wages will decline if the result is less modern sector employment :
- any policies which undermine work and income sharing will push more workers into activities where work and income sharing continues, lower the average product in these activities and, via the reservation wage, lower wages elsewhere. So a shift from share cropping or harvest sharing to hired labor can have repercussions in large parts of the economy.

B. Inflation and Real Wages

Real wages were affected not only by growth, but also by the rate of inflation. Adjustments in (nominal or) money wages seemed rather consistently to lag behind price changes by about two years, whenever price changes were rapid and unexpected.

1. Reasons for the Effect of Inflation on Real Wages

There are variety of plausible reasons why rapid price increases can result in a decline in real wages. Neither employers nor employees can accurately forecast the rate of inflation and it is only in conditions of hyperinflation that money wages are changed as frequently as every month. Normally, many wage rates are changed only once a year at most. Then real wages will decline :

(a) in proportion to the *rate* of inflation if wages are adjusted retroactively at the end of the year/beginning of the next year, to take account of the past year's inflation.

(b) in proportion to the *acceleration* in inflation if wages are raised at the beginning of the year to take account of anticipated inflation, on the assumption that next year's inflation will equal the past year's.

However, if employers and employees attempt to stabilize real wages by anticipating inflation, then real wages should not be affected by the rate of inflation if either (i) they learn from experience and predict accurately (ii) they overshoot or undershoot in a random fashion. It is only if decision makers are not "rational", but stubbornly assume that the future rate of inflation will be exactly the rate of the past, that wages would always overshoot (real wages rise) when inflation show down and undershoot (real wages fall) when it speeds up.

The picture is further complicated because price data are available only with a lag the years for which wage and price series are calculated are not always the same years, and because wages may be adjusted in the "middle" of a wage or price year (e.g. wage statistics may be collected for a July 1 to June 30 year, wage adjustments may be made January 1, based on price changes for January to June of the previous year). It therefore becomes very difficult to specify a model which accurately tests the various hypotheses. It may also be that wages are adjusted only to take account of past inflation when the rate of inflation is low, but that a further anticipatory adjustment is built in when inflation has been high for sometime.

Clearly if the rate of inflation is low, it makes little difference which adjustment mechanism prevails, the effect on real wages will be small, But if it is high, the losses are significant if one assumes

only a retroactive adjustment⁵. With an anticipatory adjustment, the level of inflation does not matter, only its acceleration does. With a mixture of the two, a low and steady inflation will hardly affect real wages, a rapid and accelerating one will have serious effects.

2. Evidence on the Consequences of Inflation

As a matter of fact in Pakistan, where the rate of inflation was very low for all but three years in the 1970's,⁵ the impact of inflation on real wages was not clearly demonstrated in regression analysis. (see Appendix). Moreover, the picture is further complicated because this was also a period when average agricultural output had dropped and it is obviously difficult to know whether declining real wages were due to accelerating real wages were due to accelerating inflation or declining agricultural production. So statistical tests generally showed inflation as not significant in affecting real wages.

But for the other three countries, and for Pakistan when less rigorous tests are used, the rate of inflation had a significant negative effect on real wages. (Table 3). In India and Bangladesh typically nominal wages rose by only 30-40% as much as prices in the same year and even in the second year had only made up 40-70% of the price rise. Indonesia has had extensive experience with rapid inflation. The only long series available, for plantation workers, showed 60-80% of the price increase made up by nominal wage increases the first year and the remainder compensated for in the second year for the all-Indonesian series. But when inflation reaches several hundred percent, even if wages catch up by 70%, the losses in real terms are still very significant, as the real wage analysis show. Semi-annual data are available for the 1973-74 inflation in Indonesia, and they show a decline in real wages over

-
5. eg : If over a year inflation is a steady 1% a month, if next year's wages are increased to take account of the first eight months of the increase for which information is available; then the loss in real wages will be 9% i.e, wages at the beginning of the new year will go up from 100 to 108, but prices will go from 112 at the beginning to 125.5 at the end of the year; or a loss of 4% at the beginning and of 14% at the end.
 6. The coefficient of variation of prices was .18; for India, the country with most stable prices of the other three, if was nearly twice as high at .32.

18 months, with another 18 months of increase required to bring real wages back where they were in 1972, or a 3 year adjustment process.

If one isolates the relatively short periods of inflation from longer term trends of growth (or stagnation), one can see that the effect of inflation can be quite dramatic, in fact brutal for the affected workers. Even a 5-10% decline in real wages averaged over a two year period, characteristic of the mild inflation of India, Pakistan and Bangladesh in the mid-1960's, is a blow to a low income wage earner, especially since some groups suffered a 10-20% decline in a single year. The drop of 20-30 in real wages, typical of the more rapid inflation in Indonesia, Pakistan and Bangladesh in mid-1970's, was obviously even more serious. (see Table 3).

TABLE 3

Short-term changes in real Wages Resulting from Information

	Annual Rate of price change- percent	Changes in Real Wages with Relatively	
		Stable Prices	Rapidly Raising prices
<i>Bangladesh</i>			
56/9 to 59/64	1 to 3	+11% to +14%	
61/4 to 64/67	5 to 14		-10% to +42%*
67/71 to 71/75	42 to 49		-32% to -42%
73/5 to 75/7	-9 to -20	+19% to +53%	
<i>Indonesia</i>			
66/8 to 69/71	9	+86%	
72 to 73II-74I	8		-18%
74I to 1976	12	+28%	
<i>Pakistan</i>			
62/4 to 64/6	2	+18% to +13%	
64/66 to 66/68	8		-5% to -8%
71/3 to 74/6	23		+24% to -9%
<i>India</i>			
53/56 to 56/58	12		-4 to -26%
58/60 to 60/62	9	+9 to +16%	
64/6 to 66/8	21		-4 to -5%

*Rise in manufacturing wages, probably as a result of structural change.

Note : (a) Prices are the average rates of inflation during the period being examined ; that is, during the later group of years.

- (b) Wages changes shown the change between the average for the later period as against the average during the base period. Two or four years are average for the comparison to reduce the effect of random, short-term fluctuations.
- (c) The wages shown are Bangladesh : Average of three series except for first period when agriculture manufacture only. Indonesia Planation wages for all Indonesia. Pakistan : manufacturing and textiles. India, Rural, manufacturing, textiles.

Source : Table 2-5 in the Appendix.

These declines occur even when two or three-year averages have been compared to minimize random fluctuations, If single year changes are compared, the decline in real wages often increases further. For instance, from 6% for India rural wages for 66/67 to 67/68 to 10% for 1967 to 1968 alone. Inflation in India, Pakistan and Bangladesh in the mid-1960's, when prices increased by 10% to 20% generally produced real wage declines of 5-10%, if two year averages are used and 10-20% if one year comparisons are made. The one series for which semi-annual data are available, the Indonesia plantation wages, show a drop of 25% in the real wage in an 18 month period.

During short periods of inflation the compensating factors are absent which can soften the effect of longer-term wage deterioration, more employment, greater access to government services, more opportunity for secondary and illegal incomes. A 25% decline in purchasing power then becomes a very severe blow.

Since Indonesian semi-annual data and the regression analysis suggest that it takes two to three years before wages catch up again with prices after prices are stabilized, the decline in workers, income can be both quite severe and quite long.

The effect of a given rate of inflation is different for the four countries. For Indonesia a 9% or 12% rate of inflation was accompanied by a rapid increase in real wages; for Pakistan (and Bangladesh) a similar 7 - 10% rate of inflation was accompanied by a decline. There are two likely reasons for this difference :

- (i) It has, of course, been argued earlier in this paper that inflation is not the only factor influencing wages. Changes in average product in agriculture, for instance, may counteract changes in inflation.

(ii) For Indonesia a 9% rate in the late 1960's represented phenomenal stability, since previous rates of inflation ranged between 100% and 1,000% a year. For Pakistan a 7% rate was tripling of the previous experience. Indonesian employers and employees had adjusted to, and were expecting, very rapid price increases. Pakistan were expecting a much lower rate. The results are therefore quite consistent with the hypothesis that not only the absolute rate of inflation, but also the change in the rate, affects real wages. The complexity of the relationship between prices and real wages is one reason why the results are not always statistically significant. Moreover, some firms, especially if unskilled workers, wages are a small part of total cost, can and do protect their workers against short-term price fluctuations because they wish to keep a stable and contented labor force.

For wage earners as a whole, however, Table 3 makes it clear that sharp setbacks in income, lasting two to three years, can occur as a result of rapid increases in the prices of the goods they buy. Some of the two to three year periods declining wages have occurred during decades of rapid growth, and succeeded several years when wages were rising quite rapidly. It is plausible that expectations have been raised during periods of rapid increase in real wages. If wages then not only stop rising, but actually fall 5-30%, workers are likely to feel especially disappointed and angry.

Political unrest is a natural consequence of declining real wages. If a sharp drop in real wages over a year or two occurs during a decade or more of rapid economic growth, the resulting political unrest may then be attributed, incorrectly, to the effects of growth. Sharp economic setbacks as a result of poor weather or changes in the price of export commodities, are inevitable in the vulnerable economies of many less developed countries, even if the long-term rate growth high. Since these setbacks usually result in an inflationary episode, which lowers real wages, it is not surprising to find political unrest during periods of rapid economic growth. It can be caused by the serious temporary decline in wages, all the more difficult to bear if it follows on an earlier rapid rise in wages.

3. The Consequences for Policy

Most governments and political leaders are painfully aware that increases in the price of wage goods, principally food grains, will cause political problems. But the magnitude of the effect has often

not been realised. The data from the four countries suggest that (a) while a low rate of price increase does affect real wages, because money wages tend to lag, behind even these price changes, price increases of 0-6% generally have little discernible effect on real wages, but (a) when prices rise 8 - 20% or when inflation accelerates in countries where such price rises are normal, real wages of some large groups can and do decline by 10 to 20% (or more) in a year or two.

Programs to stabilize the prices of wage goods, through storage or imports or both, therefore can have substantial benefits in stabilizing real wages and in preventing the hardship and unrest which otherwise occur. Storage or import programs have sometimes been opposed by economists because of their cost, but the data for the four countries indicate that the alternative may be serious declines in real wages for workers in industry, agriculture, construction and other activities, as many wages follow prices only with a considerable lag.

C. The effect of Minimum Wages Mandated Employment and Unions.

There is rather little one can say about other factors affecting wages because their impact was usually of short duration and uncertain magnitude or because it could not be analyzed with the data available.

1. Minimum Wage Legislation

Some minimum wages legislation was generally on the books in all four countries, but it was ineffective most of the time because it applied only to manufacturing firms above a certain size (generally 10-20% workers in South Asia), because for long periods of time employers knew there would be no enforcement action especially for smaller firms, and because the minimum wage was usually adjusted for inflation only with a lag, so that the minimum wage was generally lower than the actual wage in most enterprises where minimum wage legislation applied.

Since most of the data used here consist of averages for many firms and different categories of workers, it is particularly difficult to identify the effect of minimum wage legislation. This is certainly one reason why India shows no effect of minimum wage regulations on the real wage. Moreover, Indian minimum wages were kept quite

low and seem to have had little effect for most workers. In Indonesia minimum wage legislation was not effective for much of the period under review and its impact was probably negligible.

In Pakistan and Bangladesh, there were several years when a major increase in minimum wage was decreased setting the minimum wage substantially above the wage actually paid to the great majority of workers and dramatically raising the real wage. The first year when this occurred was 1969, following the rioting and strikes which began in (West) Pakistan, spread to East Pakistan (now Bangladesh) and led to the ouster of President Ayub Khan. In Pakistan there was another effective increase in 1972/73, but subsequent increases were less than the rate of inflation. In both Pakistan and Bangladesh the impact of minimum wages in the few years when they were effective is packed up by the statistical regression analysis in a significant (dummy) variable for various series of wages in manufacturing.

It is logical and supported by these results, that government is able to raise real wages for organized sector workers in large enterprises. What is more surprising is that in the years when minimum wage legislation was effective, the real wages of some workers outside the organized manufacturing sector also rose. The explanations for this are conjectural, this was a period of labor unrest, of strikes and of demonstrations, when government was clearly anxious to pacify workers. Employers wish a regular labor force, not one hired by the day and changing from day to day, may have considered it wise to raise wages rather than face strikes of demonstrations, and workers may have demanded wage increase, even if minimum wage legislation did not apply to their firms.

2. The Effect of Minimum Wages and Government Policies on Employment

But the conclusion is clear, government can raise real wages substantially for a large proportion of the organized urban labor force, with some effect on other workers as well, by a massive increase in the (nominal) minimum wage. One consequence is likely to be reduced employment, if managers are free to reduce their labor force. Obviously, as real wages rise, the employment of labor become less

-
7. For instance, in Pakistan the minimum wage variable was significant for the small cold storage unit and construction labor, but not for casual workers.

profitable and fewer workers will be employed. But there are two factors which work against this effect of increased real wages. First, many employers may be earning abnormal profits because of a variety of distortions in the economy - - e.g. an import licensing system that gives windfalls to those awarded licenses, government protection against foreign of domestic competition for monopoly producers, indirect subsidies via cheap credit. Then there may be no strong pressure to reduce the labor force, even if wage costs increase, especially if the share of unskilled labor in total costs is small. Increased wages may mean only negligible reductions in profits, and therefore produce no noticeable decline in employment⁸ if managers are more interested in avoiding trouble than in a small increase in profits. However, while employed workers may not lose their jobs, at least in the short run, higher real wages will undoubtedly reduce the new employment created.

Second, decreased employment can be prevented, and even increased employment can be made to accompany rising real wages, by government fiat. A government concerned with the income of workers in the organized sector can increase the number of jobs available to them as well as their wages, especially if a substantial proportion of the organized sector is under public ownership and management. But this is a costly proposition for the economy and the government, and in fact higher government mandated wages usually meant less employment.

8. E.g., one firm in Indonesia indicated that all labor costs were only 10% of total costs. Costs of unskilled labor, potentially affected by minimum wage legislation were probably less than 3% of total costs. A 20% increase in real wages then would be such a negligible share of total costs that it did not cause any change in employment for a firm with ample profits.

TABLE 4

Relationship of Employment and Wages

Indonesia			Pakistan			Bangladesh		
Changes in								
Years	Wages	Employment	Years	Wages	Employment	Years	Wages	Employment
1955-			1966/68			1968/69		
1963	-52%	+17%	1968/71	+25%	-8%	1969/70	+14%	-47%
1963-			1968/71					
1966	+18%	-6.5%	1972/73	+18%	-14%			
1966-			1972-					
1972	+66%	-19%		-35%	-17%			

Note and Sources : Indonesia: Plantation wages and employment for all Indonesia from Appendix Table 4.

Pakistan and Bangladesh : all of manufacturing from Appendix Tables 3 and 2 for wages ; employment from Statistical Yearbooks and Bulletins.

Sharply higher wages imposed by fiat quickly raise costs for most enterprises. The governments did subsidise public enterprises. But private firms usually did not receive subsidies and when wages were increased they had to find some way to shed workers, to lower real wages or to shut down. Even for public enterprises, constraints on the budget limited subsidies. When no further increase in subsidies was forthcoming, public enterprises faced the same alternatives. There is no inherent reason why governments cannot continue to subsidise more workers or higher wages than needed by the organized modern, politically important sectors. But in fact, in the countries under review where resources are severely limited the three government that actively pursued policies designed to benefit workers in the organized sector rather quickly seem to have found the costs excessive and accepted lower wages or less employment.

3. The Effect of Unions

The effect of trade union activity over time is even more difficult to trace than the effect of government intervention. Strikes were prohibited and/or union activity severely curtailed in Bangladesh and Pakistan during much of the 1960's, and in Indonesia from the mid-1960's on. At other times unions were operative in only some industries and within industries in only some plants, and even where unions existed they were often ineffective, especially for the unskilled workers whose wages are primarily under study. Of course, the changes in wages over time, which are being analysed, do not give, any indication whether there is a difference in the wages of unionized and non-unionized workers in the same activity, but there is some slight evidence for three propositions :

(a) Unions may have been quite effective in maintaining or raising wages in capital intensive units, where labor costs are a small fraction of total costs, potential labor power is high and workers are more likely to be organized. The evidence for this contention is impressionistic, stemming mainly from differences in wages between labor intensive and capital intensive units observable when individual firms were interviewed in Pakistan and Indonesia, plus statements by a few managers of such units that a union was active. While the conclusion is plausible and has been shown to apply elsewhere, this study really provide no significant evidence for it.

(b) Worker power did raise wages in the short term in industry in several instances. For instances, in Pakistan and Bangladesh the increase in real wages in the late 1960's, and in the early 1970's for Pakistan, was almost certainly affected not only by the minimum wage, but also by strikes and other forms of workers' action. Workers' action also were a major reason for sharp increases in the minimum wage. Since both occurred in the same years, the separate effects cannot be distinguished. However, increased wages in these years in some fields where the minimum wage was not effective suggest that workers' action had an independent effect and it certainly was crucial in pressuring governments to raise the minimum wage. So the highly significant variable for government intervention to raise the minimum wage really represents in large part the effect of direct and indirect workers' action.

(c) Over the long term, wages declined most in the three countries other than India when workers' pressure and political power were greatest, rose when it was weaker. This apparent paradox stems from the relationship between the rate of economic growth and real wages discussed earlier. Labor power was greatest under governments that were little concerned with economic efficiency or production, when economies stagnated. Wages declined, despite labor's because labor power was inadequate in a labor surplus economy to protect workers' interests in a situation of declining per capita resources. Without labor power, the negative effects on real wages might have been even greater. Governments at the time were also concerned to solidify and increase their political support by increasing the number of workers given jobs in the organized sector, over which government had extensive control. Whatever resources were available to pay wages, therefore, had to be shared among a larger number of workers.

In these four poor, labor surplus economies, the effectiveness of the normal economic weapons of trade unions in mixed economies is bound to be limited. It proved simply inadequate to obtain for labor a constant absolute wage in circumstances where the total income of many enterprises was declining and usually had to be shared among an expanding labor force.

D. The Political Consequences of Changes in the Real Wage.

It is difficult to provide convincing evidence on the political consequences of changes in the real wages, because no good index exists of support to government or conflict with employers in these four countries. The usual index of labor dissatisfaction, the number of days lost in labor disputes, of course, cannot be used for unorganized workers who do not usually engage in formal strikes and whose disputes are not recorded. Moreover, strikes were illegal for long periods in three or the four countries, so an index of man-days lost is more an indication of the legal status of strikes and the enforcement of anti-strike legislation than of worker dissatisfaction.

An index of riots provided impossible to obtain for most countries and their incidence also depends as much on the effort at suppression as on discontent. Moreover, it is impossible to distinguish riot caused by religious, language, political or regional disputes from those based on economic grievances. For instance, riot in Bangladesh

increased by more than 50% from 1970 to 1972 and all crimes by over a third, while real wages dropped by 20-35 and these two facts were certainly related. But the increase in riot also had something to do with the ending of martial law, the independence of Bangladesh and so on.

Therefore, the best that can be done is to list the major civil disturbances that occurred in the four countries and, conversely, those electoral triumphs of government that seemed to reflect some genuine support, rather than outright manipulation, and compare them with changes in real wages at the time. This is not very accurate, but it is quite suggestive.

TABLE 5
POLITICAL EVENTS AND REAL WAGES

Changes in Real Wages

1. Election confirming Ayub Khan as President of Pakistan (incl. president (Bangladesh) 1964-65. (61-63 compared to 63-65).	Agric. \uparrow 10% (Bangladesh) Manuf. \uparrow 8% (Bangladesh) Manuf. \uparrow 14% (Pakistan)
2. Riots leading to ouster of Ayub Khan, 1967/68. (64-66 compared to 66-68) (N.B.: Riots doubled during this period, from 3,500 to 8,000 or more).	Agric. -13% (Bangladesh) Manuf. -10% (Bangladesh) Manuf. - 5% (Pakistan)
3. Riots/elections in favor of autonomy of Bangladesh and ouster of military regime in Pakistan 1970-71 (66-68 compared to 68-70)	Agric. \uparrow 11% (Bangladesh) Manuf. \uparrow 14% (Bangladesh) Manuf. \uparrow 13% (Pakistan)
4. Ouster of Bangladesh Awami League Government, 1975 (69-71 compared to 73-75).	Agric. -37% Const -29% Urban. -21% Manuf. -60%
5. Election Confirming President Ziaur Rehman as President of Bangladesh, 1978 (74/5 compared to 76/7).	Agric. \uparrow 53% Const \uparrow 53% Urban \uparrow 31% Manuf. \uparrow 47%
N.B.: Crimes also decreased by 20)%	

Contd.

- | | |
|--|--|
| 6. Demonstrations/riot supporting ouster of Sokarno as President of Indonesia 1966-67 (60-61 compared to 66-67) | Plantations -25% (Indonesia)
-25% (Java) |
| 7. Demonstrations/riot stressing economic grievances, Indonesia 1973-74 (Plantations 72-I to 72-II/74-I Public Works 71/72-I to 72-II/73 Industry 72-73) | Plantation -24% (Indonesia)
-27% (Java)
-28% (Sumatra)
Pub. Works -39% (Sumatra)
Industry -17% (Indonesia) |
| 8. Failure of student demonstrations in Indonesia to gain wider support, 1977 (74-I compared to 76). | Plantation +28% (Indonesia)
+19% (Java) |
| 9. Electoral success of Indian Congress 1971 (67/69 to 69/71). | Rural 0
Industry + 7%
Textiles 8% |

Sources : Appendix Tables 2-5 for real wages.

There was one clear instance where political dissatisfaction occurred despite economic improvements for wage earners, who nevertheless participated actively in anti-government action: the riots, demonstrations, and elections in Pakistan in 1970-71. They resulted in the election of opposition candidates and contributed to the independence of Bangladesh in the former East Pakistan and the ouster of the military regime in the former West Pakistan. But in all other political development listed, increases in real wages preceded and accompanied electoral success, while declines in wages accompanied riot and demonstrations. Some of the elections cited involved government pressures against the opposition, but to a degree they still reflected popular views and are therefore mentioned as examples of economic benefits leading to political support for the government.

In all of the political events economic factors were, of course, only partially responsible. In the 1970-71 riot and election in Pakistan/Bangladesh, political factors were clearly decisive, but the interaction of politics and economics may just be more difficult to disentangle in other instances. Certainly it would be naive to argue that the ouster of Shokarno as President of Indonesia was simply or even primarily due to economic deterioration. But it is also plausible that the widespread discontent mobilized by anti-Soekarno groups to press for his ouster, was strengthened by economic deterioration over a decade, of which the 25% decline in real wages over the mid-60's was

only the last stage. Almost certainly a major factor in the riots of late 1973 and January 1974, was the universal and very steep decline in Indonesia wages, which began in late 1972 and lasted through early 1974. That it was a temporary setback after a period of substantial improvement may only have increased the discontent. On the other hand the improvement in the years just before the Indian election of 1971 may have helped the government, although it occurred in the middle of a period when wages had essentially stagnated for some 15 years. The ouster of Bangladesh's Awami League, the party of independence, was undoubtedly the result of many factors. But the reported widespread support for the 1975 coup was probably related to the economic disaster over which it had presided, reflected in a 40% decline in real wages in three years. In contrast, the new government of Ziaur Rahman undoubtedly gained support from the improved economic situation, reflected in real wage rises of 20-50%, primarily due to a 45% decline in the rice price.

In short, almost universally, lower real wages seem to have contributed to political difficulties, rising wages to political support.

E. The Combine effect of Growth, Inflation and other Factors on Real Wages and Politics.

Before summarizing and interpreting the conclusions on different factors affecting wages it is necessary to stress that this paper is apparently the first attempt to analyze how and why wages change over time in less developed countries. As a result, the analytical framework is still quite primitive. Moreover the data used to test various hypotheses are not very reliable. Finally it is probable, as discussed earlier, that non-economic and non-quantifiable factors affect wages. As a result there is a good deal of noise in the data. For all these reasons the statistical tests of the quantifiable factors do not provide unequivocal support for the conclusions reached. The results are interesting to the extent that they break new ground, but they are clearly not conclusive. The hypotheses tested require further elaboration, the data need to be extended for a longer time period additional data need to be collected, and the statistical analysis needs to be refined. But some interesting preliminary conclusions emerge.

The two major factors which, it was argued, affect real wages, the average product in self-employment and especially agriculture, and the rate and acceleration of inflation, are both in turn affected by :

- weather
- some other exogenous influences, such as changes in the price of exports e.g. : rubber, jute, cotton) and the resulting capacity to import
- government policies

Since both major factors which affect real wages are influenced by the same events they sometimes move together and then cause major changes in wage levels. For instance, when poor weather or government policies reduce per capita agricultural output this can simultaneously :

- decrease the rate of growth in National Income, with effect on the profitability of many enterprises and the demand for labor
- reduce the average agricultural product, and thereby the reservation wage (supply price) of agricultural labor
- increase the rate of inflation by reducing the domestic supply of wage goods
- reduce export and therefore the capacity to import food-grains and other wage goods, further contributing to inflation

As a result of all four interrelated factors real wages would drop. In three of the four countries, one can distinguish periods of several years when several factors combined to make for declining or rising real wages.

1. Growth Oriented Development Strategies and Rising Wages.

Indian development strategy was relatively consistent over the 20 year under review, but in the other three countries one can distinguish sharp breaks. In Pakistan (then including what is now Bangladesh) in the 1960's, and in Indonesia late in the decade, the emphasis was on rapid growth in national income. Average agricultural output increased. Prices were stabilized by increased output, by more imports, especially of food, partly financed by aid, and by conservative fiscal and monetary policies.

In terms of the mechanism sketched earlier, with limited empirical support, rapid growth with relatively stable prices resulted in rising real wages because :

- (a) The reservation wage of "surplus" self-employed agricultural labor increased as the average income from agriculture rose ;

- (b) Similarly, increased demand for informal sector services, and lessened pressure on that sector as people found employment in the formal sector, increased the average product and therefore the reservation wage of informal sector workers.
- (c) More enterprises were profitable and with profit, non-economic reasons for raising wages increased in force :
- (i) Employers' ability to pay higher wages increased.
 - (ii) Their willingness also increased to pay higher wages for non-economic reasons.
 - (iii) Employees may have revised upward their definition of a 'fair' wage and pressed for higher incomes.
- (d) With greater demand and profits, it also made economic sense for employers to increase wages to :
- (i) increase the supply of work without hiring more workers, to avoid hiring and firing costs
 - (ii) reduce the chances of labor strife, which had become more costly.
- (e) That money or nominal wages tend to lag behind prices mattered less when prices rose little, and resulted in increased wages when prices fell. (This refers to the rate of price changes).
- (f) With a slowing in the rate of inflation, and attempt to compensate for future inflation will actually raise real wages. (This refers to a change in the rate of price change).

For most or all of these reasons, real wages in all the three countries rose when development strategy was growth-oriented, despite the governments' neglect of distributive policies and the undermining of labor power.

Rapid growth can also increase employment in the high wage, modern sector especially industry. It thereby increases the speed with which workers could move from self-employment, where "surplus" workers contributed little or nothing to family income, to better paying wage employment. With higher real wages and greater productive employment, wage earning groups were clearly better off in absolute terms during these periods of rapid growth than during periods of stagnation or decline in the economy. Since

Wage earners include those employed in agriculture and in the unorganized sector, they encompass a substantial proportion of the poor. This relationship of real wages with growth and price stability helps explain why income distribution does not seem to have necessarily deteriorated during periods of rapid growth.

2. Rapid Growth and Stagnant Wages - A Possible Caveat

A warning note needs to be sounded about the relationship of a rapid rate of economic growth and rising real wages. In Indonesia real wages may have stagnated from 1970 to 1976, despite a very rapid (8%) rate of growth because :

- growth was concentrated in the capital intensive sectors which provided few jobs for unskilled workers
- jobs were simultaneously lost in traditional industry, transport and trade, partly because of competition from imports and government supported capital-intensive industry, and partly as a result of policies which restricted labor intensive occupations.
- work and income sharing policies may have become less powerful as a result of population pressure, technical change, commercialization and a different political environment
- rapid inflation, concentrated in the prices of wage goods, reduced real wages between 1972 and 1974 and the subsequent rise to 1976 only made good the earlier loss.

The Indonesia experience is not conclusive, because the period of analysis is short and greatly affected by an exogenous inflationary spurt that may have had a temporary effect on wages. But it does suggest that the mechanism relating wages and growth described earlier can result in a situation where stagnant wages accompany rapid growth, although more generally rapid growth leads to rising wages. However, the Indonesian experience may differ from that of other countries because Indonesia is more dualistic than the other three and government adopted some policies that strengthened dualism and that may have reduced the average product per worker in the informal sector and thereby the reservation wage.

9. It is analysed in more detail in my "The Effect of Growth and Inflation on Worker's Income" in *Essays on the Economy of Indonesia* (forthcoming).

But even in Indonesia rapid growth meant dramatic increase in real wages during its initial phase and workers were clearly better off with growth than with a stagnant economy which resulted in reduced wages.

3. Populist Development Strategies and Real Wages.

The alternative, populist, strategies pursued in Indonesia from the early 50's to the mid-60's, and in Pakistan and Bangladesh from the early to the mid-70's, neglected growth but did not really emphasize income distribution either. They were "populist" in the sense that they curtailed the power of the largest business houses and families, increased the power of the state and the organized workers, and tried to raise the income and increase jobs for the latter. They also tried to increase the availability of education, health and other government services to the great majority of the population. In all three countries, the central hallmark of the populist strategies, however, was not a different set of priorities or policies with respect to economic issues but an emphasis on political objectives and a neglect, bordering or contempt, for economic objectives or performance. In India the changes in strategy were always far more limited. Just as there never was a consistent growth-oriented strategy in India, so there was not a consistent populist one.

The short-term consequences of the populist strategies in the other three countries differed. In Pakistan the new government inherited a quite well functioning, rapidly growing, economy and relatively efficient government machinery and initially adopted some effective economic policies. As a result, agricultural output remained high, prices rose only moderately, foreign resource inflows accelerated and the economy continued to function quite well until 1973/74. The initial effect of minimum wage legislation and greater worker, therefore, was a further increase in real wages. But over the longer term the deterioration of the economy, which resulted in part from the strategy pursued, affected real wages by the mid-1970's. In Indonesia and Bangladesh with economies debilitated by civil war and war, and with a weak government machinery, the further deterioration in the economy as a result of populist policies very quickly reduced real wages.

The reasons for a decline in real wages in stagnating or declining economies were simply the mirror image of the effects of rapid

growth : a declining average product in agriculture (and other self-employment), high and accelerating inflation declining profit and demand. Government, by raising the minimum wage, and workers, by using their reader political and economic power, may well have depended the effects of other factors on the wages of workers, particularly the labor aristocracy in large-scale manufacturing enterprises. But in the three economies, these actions could not fully offset the pressure on wages from a deteriorating economy and they never helped much the great mass of unorganized workers. Real wages for workers as a whole deteriorated. If government then forced enterprises, especially public enterprises, to hire more workers in the face of declining demand, the real wages dropped quite sharply. "Surplus" workers were in the process transferred from self-employment to wage employment, but in a declining or stagnant economy they remained 'surplus', not contributing to real output.

GROWTH, INFLATION AND REAL WAGES
(Percentage Charges)

	<i>Time Period</i>	<i>GNP/GDP Growth</i>	<i>Average Agricultural Product</i>	<i>Price</i>	<i>Wages</i>
Bangladesh	50.s	2.1	-1	2.5	0
	60.s	4.2	0.5	5.3	11
	70.s	-3.9	-7.4	28.6	-29
Pakistan	50.s	3.3	3.1	1.2	(4)
	60.s	6.4	4.4	3.3	10
	70.s	3 to 2.1 ^o	-2.8	15.5	6 to -20 [*]
Indonesia	58-67	2.0	N.A.	190.3	-53
	67-75	8.0	N.A.	36.6	47
India	50.s	3.6	0.7	5.0	(-26)
	60.s	3.4	0.5	7.0	1
	70.s	3.0	-2.6	(5.4)	(2)

Notes : (a) All figures, except for real wages, are annual rates of change

^o(b) For Pakistan in the 1970's the 6% increase in wages and 3% in GDP is for all of the 70's. Deterioration in the economy began in 74. GDP between 74 and 77 increased

by 2.1% according to official figures, but in fact the rate was less (see Appendix). In these years wages declined by 20%.

(c) The time periods are :

Bangladesh: 49/0 — 59/60 ; 60/61 — 69/70 ; 71/72—74/75
for wages, 70/71 included also for other
columns. Real wages are for agriculture ;
so are prices.

Pakistan : 53/54 — 59/60 ; — 69/70 ; 70/71 — 75/76.

Indonesia : Year as indicated.

India : 52/53 — 59/60 ; 60/61 — 69/70 ; 70/71 —
72/73. Real wages are rural except for last
year, where increase in textile wages was
(illegitimately) spliced on ; therefore, in
parentheses. Prices are rural, again except
for last year.

(d) Real Wages comparisons are averages for longer periods :

50's — Average for second half compared to first half

60's — Average for decade compared to second half 50's

70's — Average compared to 60's

For Indonesia : Average 58-67 compared to 53-57 and
average 69-75 compared to 58-67.

The figures in parentheses indicate that only 5-6 years' data available, so may be dealing with random fluctuations.

Source : Tables 1—5 in Statistical Appendix.

The decline in income of the poorer group was less than the decline in real wages because government sometimes succeeded in temporarily increasing employment and in all cases provided more free services, especially education. These benefits, however, seem to have been outweighed by the losses due to declining wages.

4. The Political Consequences of Economic Tetbacks.

When real wages declined as a result of a development strategy which produced stagnation in the economy, the government in power sooner or later faced political problems in many cases (see Table 5). But political problems also occurred during periods of rapid growth, when there were temporary episodes of declining real wages as a

result of brief periods of economic deterioration. The temporary economic declines were due to :

- (a) Bad harvest, resulting in a lower average product in agriculture, high and accelerating inflation, and lower growth (profits).
- (b) Reductions in foreign aid, curtailing the supply of wage goods and investment goods, thereby increasing prices and reducing growth.
- (c) Rapid expansion in the money supply increasing inflation.
- (d) Deterioration in the terms of trade, again raising prices and lowering growth.
- (e) Deterioration in confidence, with same effects.

Since these recessionary episode took place during or after a period of growth, the political effects were likely to be especially severe. Growth and rising real wages had raised hopes and expectations. When these seemed to be suddenly and cruelly disappointed, that may be more difficult to accept than a long period of stagnation or minimal increase in real wages, which did not raise expectations. The political consequences were compounded if conspicuous consumption continued unabated, so that wage earners, contrasting their sudden suffering and disappointed expectations with the continued affluence of the rich, concluded that sacrifices were only imposed on them.

This describes the situation in Pakistan, Bangladesh and Indonesia. By the mid-60's in the first two countries real wages had been rising for several years (15—30). The rise in Indonesian wages from the mid-60's to the early 70's had been even more dramatic (nearly 100) as was the fall in 1973/74 (-50). It was during these periods of declining wages, following on a period of significant rise, that political difficulties occurred in all three countries and led to erroneous conclusions about the destabilizing effects of rapid growth.

5. Is Growth Necessary and Sufficient ?

All of this sounds like an argument for a return to the development strategies of the 50's and early 60's: emphasizing growth, avoiding government intervention to improve equity, in the expectation that growth would automatically benefit the poor as well as

the rich (later somewhat comperatively but appropriately called the "trickle-down" approach). That is not the case :

(a) The four countries under review are different from many other less developed countries in that they :

- (i) Had a relatively egalitarian income distribution with Gini coefficients around 0-3.5 as against 4-5 in much of Latin America. In a more dualistic, less egalitarian society, a higher proportion of the benefits of growth may accrue to those within a small, modern enclave.
- (ii) Where heavily agriculture-dependent, so rapid growth of the economy meant rapid growth of agriculture, which raised real wages throughout the economy, probably via the reservation price.
- (iii) Were labor surplus, dooming to failure attempts to raise incomes of the poor by minimum wage legislation or union action. Surplus labor means that wages remain low for the bulk of the labor force even if they are by fiat for a small, skilled or protected, organized sector.

For countries with different characteristics, the effect of a growth oriented strategy on wages might well have been quite different.

(b) This paper does not really analyze in any depth the effect of development strategy on growth and equity; the trade-off, if any, between growth and the absolute income of the poor. Only in the first section of the paper were such issues discussed briefly, and that section does not explore how particular policies and programs affect growth, income distribution and the absolute income of the poor. Another paper, in preparation addresses some of these issues in greater depth.

(c) Nor does the paper really deal with all possible alternative strategies. It does not examine the alternative of rapid growth versus a somewhat lower growth with a more equitable distribution of income in an economy efficiently managed to achieve these objectives. In fact, in three of the countries the alternative to rapid growth was a populism that neglected efficient economic management and emphasized political goals. Given the political and social circumstances of these countries, the actual alternatives seemed to be (i) high growth with little deliberate intervention to

improve equity, or (ii) low growth, with intervention designed to benefit the political elite and the elite of the wage earners, plus limited benefits for the poor through modest land reforms and improved government services.

Given these alternatives, the poor who worked for wages were clearly better off in terms of income with more rapid growth. The choice between reasonably rapid growth with neglect of equity and stagnation with almost equal neglect of equity is obviously not a difficult choice—if one is concerned only with direct economic consequences. The extent to which populist governments gave many of the poor hope, dignity, a feeling of participation and power is, of course, not measured by a study of real wages. Nor is the trade-off in the minds of the poor majority between these difficult-to-measure objectives and higher incomes. And, of course, this study did not address the question whether in these countries the only choice available is between broadly political and narrowly economic benefits. In a neighbouring country, Sri Lanka, the choice really seems to have been between growth and equity, as the government intervened effectively to distribute income. But one conclusion can be drawn: the widespread belief that rapid growth benefits to the poor majority is not supported by the evidence; the growth-oriented strategies generally raised real wages, the neglect of economic performance lowered them and often quite brutally.

But stagnant wages could coexist with rapid growth if the pattern of growth required little unskilled labor. More important, during periods of rapid growth, the inevitable setbacks to the economy, caused by weather or other outside factors, also caused severe declines in real wages and consequent political troubles. Therefore it apparently is not enough for a government to achieve a high rate of growth if it wants to avoid political problems. It needs also to pay attention to the labor-intensity of growth and it needs to cushion the wage earners against the inevitable rise in wage goods prices. Finally it probably should be sensitive to the potential for creating political friction of continuing conspicuous consumption during periods of declining or stagnant real wages.

STRATEGIES OF EXPORT-LED GROWTH WITH SPECIAL REFERENCE TO PAKISTAN*

Dr. Ziauddin Ahmad

There have been significant differences in the views of economists in regard to the possibilities and potential of export-led growth in developing countries. There is widespread agreement that international trade served as an engine of growth for many of the presently developed countries in the nineteenth century. Quite a few economists believe that international trade cannot serve the same function for the developing countries of the twentieth century. This view found forceful articulation in the writings of Ragnar Nurkse, Prebisch and Myrdal in the fifties and early sixties.¹ It was contended that whereas demand conditions were highly favourable for the growth of exports of the "peripheral countries" in the nineteenth century, exports from developing countries in the present century faced formidable obstacles owing to low income elasticities of demand for their products in industrially advanced countries, the growth of synthetics, tariff and non-tariff barriers and secular deterioration in their terms of trade. It was mainly on the basis of his pessimistic outlook about trade prospects that Nurkse advocated "balanced growth" to accelerate the tempo of development in less developed regions of the world.

*This paper has been written by the author in his purely personal capacity and does not necessarily reflect the views of the State Bank of Pakistan where he is currently serving as Deputy Governor. Computational assistance was provided by Mr. Anwar Asi and his associates in the Research Department of the State Bank.

1. See, for example, G. Myrdal, *Economic Theory and Under-Developed Region* (London, 1957), R. Nurkse, *Equilibrium and Growth in the World Economy* (Cambridge, Mass., 1961) and R. Prebisch "The Economic Development of Latin America and its Payment Problems," *Economic Bulletin for Latin America*, February, 1962.

The writings of Nurkse, Prebisch, Myrdal and others holding similar views greatly influenced policy makers in a number of developing countries and led to the adoption of inward-oriented development programmes stressing import substitution under highly sheltered market conditions. The actual results of such a policy, however did not give cause for satisfaction. It was increasingly realised that real economic costs of inward oriented development strategies were too high. Many developing countries found themselves saddled with a large number of high cost and relatively inefficient industries which most often operated at less than full capacity because of both inadequate domestic demand and a shortage of imported raw materials and replacement parts. In respect of the foreign trade sector, it was found that the process of import substitution did not alleviate the balance of payments problems and even created further strains. Industrialisation induced by inward looking policies appeared to have aggravated income inequalities by benefitting mainly a small group of industrialists and discriminating against agriculture. Several studies of United Nations, ECLA and ECAFE highlighted the limitations and adverse consequences of policies which emphasise import substitution as a means of development. The criticism of import substitution policies reached its peak with the publication of the Little, Scitovsky and Scott comparative volume² in 1970 together with accompanying country studies on Brazil, India, Mexico, Pakistan, Taiwan and the Philippines. Many economists expressed the opinion that import substitution would inevitably lead to economic stagnation unless incomes were drastically redistributed.

At the same time, a number of empirical studies on the export performance of developing countries helped dispel the "trade pessimism." The study by Karvis showed that in the period 1948-66, a number of developing countries achieved higher export growth rates than the industrial countries as a whole.³ The striking correlation between the expansion of exports from developing countries and their

2. Little, I.M.D., T. Scitovsky, and M. Scott, *Industry and Trade in Some Developing Countries* (London), (Oxford University Press, 1970).

3. Karvis I. B., "Trade As a Handmaiden of Growth: Similarities between the Nineteenth and Twentieth Centuries," *The Economic Journal*, December, 1970,

rates of overall economic growth was highlighted in a number of studies. Emery in his important study on exports and economic growth claimed :

" There are substantial grounds for believing that there is a causal relationship between exports and economic growth, and that this relationship is one of interdependence rather than of unilateral causation. There are also grounds for believing, however, that exports are a key factor in promoting economic growth and that it is generally a rise in exports that stimulates an increase in aggregate economic growth, rather than vice versa." 4

Emery's conclusions were based on regression analysis for fifty countries over the period 1953-63. Almost identical results were obtained by Massell, Pearson and Fitch in their study of several Latin American countries.⁵ On the other hand, in his study of eight Asian countries over a period of two decades (1950-1969). Healey was unable to find a high correlation between exports and growth except in the case of Malaysia and, possibly Ceylon.⁶

Though the available material on the subject cannot resolve the controversy whether there is a direct causal relationship between exports and economic growth, it can be safely stated that exports can play a dynamic role in the growth process. The essence of export-led growth is that it helps a country to overcome the constraint on growth arising from the limited size of the domestic market and makes for a more efficient use of resources compared to a policy of import substitution. The production possibility frontier of the economy is extended by dynamic growth in exports and economies of scale become available in greater measure. As exports expand the country is enabled to acquire larger imports needed to accelerate the tempo of growth and the "foreign exchange gap" situation eases. For these reasons there has been a mounting appreciation in almost every developing country of the need for increasing and diversifying exports.

-
4. Emery, R. F., "The Relation of Exports and Economic Growth," *Kyklos*, Vol. XX, No. 2, 1967.
 5. Massell, B. F. S., S. R. Pearson and J. B. Fitch, "Foreign Exchange and Economic Development: An Empirical Study of Selected Latin American Countries," *Review of Economics and Statistics*, Vol. LIV, May 1972.
 6. Healey, D. O., "Foreign Capital and Exports", *The Economic Record*, September, 1973.

While the need for increasing exports is universally recognised, the difficulties in the way of developing countries in bringing about a substantial improvement in their export earnings should not be under rated. An imported obstacle to exports is the rising tide of protectionism in many developed countries. The manufactured products of developing countries encounter severe tariff and non-tariff barriers. The latter include quotas (global and bilateral), discriminatory licensing practices and other restrictive devices. The imports of agricultural products from developing countries are also subject to a number of restrictions.

Notwithstanding the above difficulties a number of countries, of which South Korea, Singapore, Taiwan, Hong Kong and Mexico deserve special mention, have achieved good success with strategies of export-led growth. In the period 1959-1988, for example, South Korea achieved an annual compound growth rate of 42% in its exports. The corresponding figures for Taiwan and Hong Kong were 21 per cent and 14 per cent respectively. Compared with a median growth rate of about 6 per cent for all the developing countries, these represent outstanding success stories. On the other hand, a number of developing countries had a very poor export performance in this period.

In the context of the striking differences in the export performance of industrial countries it is of interest to investigate into the causes underlying such differences. This paper is concerned with evaluating the experience of Pakistan. Since a number of studies are available on Pakistan's export performance in the fifties and the sixties, the developments in this period will be only briefly touched upon in this paper. Main attention will be concentrated on Pakistan's export performance in the seventies, especially after the separation of East Pakistan in 1971.

Pakistan's exports experienced a serious retrogression in the fifties. The annual compound growth rate in exports during this period was a negative 8 per cent. After a more than hundred per cent increase in the value of exports in 1950-51 under the influence of the short-lived Korean war boom, the country's exports declined steadily in the subsequent four years till Pakistan rupee was devalued in July 1955. Devaluation was followed by an increase in exports in 1955-56 but the declining trend in exports reasserted itself after that

and it was only after the introduction of Export Bonus Scheme in 1959 that this trend was reversed.

It seems that "trade pessimism" dominated the thinking of policy makers in Pakistan in the fifties. When the pound sterling and a number of other currencies, including that of neighbouring India, were devalued in 1949, decided not to follow suit. The non-devaluation decision was justified by government spokesmen mainly on the plea that Pakistan's exports consisted almost wholly of agricultural raw materials which had a low supply elasticity and also faced an inelastic foreign demand.⁷ The result was an extreme emphasis on import substitution as a means of fostering growth. Soon after the non-devaluation decision important changes were effected in import tariff which greatly favoured producers of import-substituting consumer goods, particularly those using agricultural raw materials which were country's main exportables at that time. In 1952, as exports declined steeply after the collapse of the Korean boom and the country was faced with a difficult balance of payments situation, Government chose to meet the crisis by using direct import controls. Quantitative restrictions on imports plus the increase in import duties and fiscal concessions for investment in industry provided a highly sheltered market for the growth of domestic import-substituting industries. The terms of trade moved against agriculture which has a depressive influence on agricultural production. Although value added in industry rose at a respectable rate, the overall growth rate of the economy failed to match even the increase in population so that there was hardly any rise in per capita income. To improve the balance of payments, it was decided to devalue the currency in 1955. However, even after devaluation, economic policies retained a bias in favour of import substitution. The exchange rate adjustment did exercise a favourable effect on the ability of new manufacturing industries to export but it failed to bring about a sustained rise in the overall export earnings of the country.

The export performance of the economy recorded significant improvement in the sixties. As against the absolute decline in the value of exports in the fifties, the country achieved an annual

7. Meenai, S. A., "Devaluation—An Assessment," *Selected Papers on Pakistan Economy Vol. 3*, (State Bank of Pakistan, 1958).

compound growth rate of 9 percent in exports during 1959-1968. A study of the export performance of developing countries by Hossein Askari and Vittorio Corbo found that the increase in Pakistan's exports during this period could largely be attributed to their increased competitiveness.⁸ The introduction of the Export Bonus Schemes in 1959 played a major role in this respect. Under the bonus voucher system, which continued till May 1972, exporters of specified goods receive entitlements to foreign exchange which could be sold in an open market; the premium fetched ranged in general between 50 to 90 per cent during the period of the operation of the Scheme. This provided a powerful stimulus to exports, particularly to exports of manufactured goods. Merchandise exports rose from the equivalent of \$ 278 million in 1958-59 to \$ 687 million in 1969-70 representing a growth of 8.6 percent per annum. This served to dispel the "trade pessimism" of the fifties and the experience with the Bonus Scheme clearly demonstrated that both the foreign demand for, and the domestic supply of, Pakistan's exports were fairly price elastic.

The Export Bonus Scheme helped greatly in increasing the country's export earnings but manner in which it was operated resulted in a certain misallocation of resources.⁹ It was decided to abandon the Scheme in May 1972 and to devalue the Pakistan rupee. The expectation was that this would further strengthen the increasing trend in the country's exports. However, a number of factors combined to negate the favourable effects of devaluation on exports within a short period. The trends in Pakistan's exports during the period 1972-73 to 1978-79 are shown in Table-I. It will be seen that in the first full year after devaluation (1972-73) exports rose by about 40 percent in dollar terms and the rate of growth in exports in the succeeding year (1973-74) at 24 percent was also impressive. However, exports stagnated at about \$1 billion in the succeeding three years, 1974-75 to

-
8. Hossein Askari and Vittoria Corbo, "Export Promotion : Its Rationale and Feasibility," *Pakistan Economic and Social Review*, Summer 1975.
 9. Extensive literature is available on the results of the Export Bonus Scheme. The interested reader may refer to the excellent analysis to be found in Stephen R. Lewis Jr. *Pakistan : Industrialisation and Trade Policies* Oxford University Press, 1970) and to various articles published in *The Pakistan Development Review* collected under one cover entitled *Studies on Commercial Policy and Economic Growth* (Pakistan Institute of Development Economics, 1970).

1976-77. As a ratio of GDP, exports went down from 14.4 percent in 1972-73 to 8.3 percent in 1976-77. Exports rose by 15 percent in 1977-78 and by 30 percent in 1978-79.

The substantial rise in export earnings in 1972-73 and 1973-74 was due to the stimulus provided by devaluation as well as the favourable price and demand conditions in the world markets for Pakistan's major exports. The stagnation in exports in succeeding years till 1976-77 can partly be attributed to international recession but major causes responsible for the unsatisfactory export performance seem to be of domestic origin. It is noteworthy that while the international environment in which foreign trade takes place is the same for each country, a number of developing countries did much better than Pakistan in respect of exports. The following table compares the export performance of Pakistan with that of some of its competitors in the world markets :

RATE OF GROWTH OF EXPORTS

(In percent)

	1972	1973	1974	1975	1976	1977	1978
Pakistan	+2.1	+39.5	+16.2	-7.4	+12.8	+0.7	+27.1
India	+19.6	+20.1	+31.4	+11.2	+24.1	+18.6	+0.93
South							
Korea	+52.1	+98.6	+38.3	+13.9	+51.9	+27.0	+22.0
Taiwan	+45.0	+50.0	+25.8	-5.6	+51.8	+11.6	+37.9
Thailand	+30.1	+44.6	+54.1	-3.2	+27.8	+17.1	+17.2
Philippines	-1.8	+57.3	+48.3	-15.8	+6.5	+23.1	+4.3
Turkey	+30.7	+48.8	+16.8	-8.9	+39.9	-10.6	+30.5
Hong							
Kong	+19.9	+47.1	+17.5	+1.0	+41.6	+7.3	+16.1

It will be seen that while the international recession adversely affected the export performance of almost all countries in 1974 and 1975 most of the countries in the above list fared much better than Pakistan. During 1976 and 1977 when world economic activity picked up, almost all these countries achieved far higher growth rates in exports compared to Pakistan. In 1978, a pick up in country's exports improved the position somewhat but still countries like Turkey and Taiwan witnessed larger growth rates than those recorded by

Pakistan. The result of Pakistan's lagging behind in export performance is reflected in its declining shares in the world's export trade. It will be seen from the figures given in Table-II that Pakistan's share in world exports declined from 0.17 per cent in 1972 to 0.10 percent in 1977. In respect of exports from developing countries, Pakistan's share fell from 0.96 percent in 1972 to 0.41 percent in 1977. During the same period Pakistan's share in the exports of non-oil developing countries declined from 1.48 per cent to 0.86 per cent. These percentages showed some improvement during 1978.

It is possible to employ the the Constant Market Shares (CMS) technique¹⁰ to analyse the main factors responsible for the unsatisfactory export performance of Pakistan in recent years. Changes in a country's exports in a particular time period are decomposed into four components: Changes due to (1) the growth of world trade (2) differential product growth (3) differential market growth and (4) a residual or competitive effect. The first three are demand side factors reflecting how far a country's exports have kept pace with world trend and how far deviations from the constant share are associated with concentration of exports in commodities or to markets with above or below average growth rates. The technique reveals that even if a country maintains its share of every product in every market, it can still have a decrease in its aggregate market share if it exports to markets that grow more slowly than the world average and/or if it exports products for which demand is growing more slowly than average. The fourth component is a residual representing the difference between the actual increase in a country's exports and what the increase would have been if that country had maintained a constant share in the market for each commodity in each country or a group of countries. The change in "competitiveness" represents the factors working on the supply side in the country itself.

10. For a good expository note on Constant—Market—Shares Analysis see Stephen P. Magee "Prices, Incomes and Foreign Trade" in Peter B. Kenen (ed.): *International Trade and Finance: Frontiers for Research* (Cambridge University Press, 1975) pp. 239-243) For interesting applications of the technique see R. W. T. Pomfret: "Manufactured Export Expansion in A Semi-Developed Economy: The Israeli Case," *Economic International*, Vol. XXVIII, No. 3-4, and J. M. Fleming and S.C. Tsiang, "Changes in Competitive Strength and Export Shares of Major Industrial Countries," *IMF Staff Papers*, August 1956.

Under the CMS method, the increase in exports ($X^2 - X^1$) and component parts can be depicted as an algebraic identity :

$$(1) X^2 - X^1 \equiv r \cdot X^1 + \sum (r_i - r_j) X^1_{ij} + \sum_i \sum_j (r_{ij} - r_i) X^1_{ij} \\ \sum_i \sum_j (X^2_{ij} - X^1_{ij} - X^1_{ij})$$

An alternate formulation of equation (1) to take account of the market distribution effect before the commodity composition effect can be written as :

$$(1a) X^2 - X^1 \equiv r \cdot X^1 + \sum_j (r_j - r) X^1_j + \sum_i \sum_j (r_{ij} - r_j) X^1_{ij} + \\ \sum_i \sum_j (X^2_{ij} - X^1_{ij} - r_{ij} \cdot X^1_{ij}).$$

where the subscripts refer to the i th commodity group and j th destination for a country's exports. Their variables represent growth rate for world trade.

The OMS estimates of sources of changes in Pakistan's exports can be worked out only for the period upto 1975 as necessary data are not available for the subsequent period. The following table shows the sources of changes in Pakistan's exports during 1972-75 according to both formulations and separately for all goods and manufactured goods :

THE SOURCES OF CHANGES IN PAKISTAN'S EXPORTS 1972-75

	All Goods (a)				Manufactured Goods (b)			
	Identity (1) value (\$m)	%	Identity 1(a) value (\$m)	%	Identity (1) value (\$m)	%	Identity 1(a) value (\$m)	%
Pakistan's exports in 1975	1031		1031		567		567	
Pakistan's exports in 1972	687		687		381		381	
Increase in Pakistan's exports	344	100	344	100	186	100	186	100
Increase due to :								
Increase in World trade	+761	+221	+761	+221	+349	+188	+349	+118

Contd/49

Commodity								
effect	-177	-52	-231	-67	-33	-18	-25	-14
Market								
distribu-								
tion effect	±46	±14	±99	±29	±30	±16	±22	±12
Competi-								
tiveness	-285	-83	-285	-83	-160	-86	-160	-86

Note: j-1, . . . 6 the markets being Japan, USA and China, EEC, EFTA, Asia excluding Japan and rest of the world;

(a) i-1 . . . 6 the groups being SITC (0+1), (2+4), 3, 5, 7 and (6+8+9).

(b) i-1 . . . 3 the groups being 5,7 and (6+8+9).

Source: U.N. International Trade Year Book 1976.

U.N. Commodity Trade Statistics 1972, 1975.

It will be seen that the main reason for the slow growth in Pakistan's export earnings in the period 1972-75 is to be found in the factor of "competitiveness." Another adverse influence was that its exports had a concentration of such products whose demand grew more slowly than the average for world trade. Whatever increase took place in Pakistan's exports was due to increase in world trade and marginally to expansion in exports to markets which grew faster than the average for the world trade.

"Competitive strength" or "competitiveness" is a rather broad term. Changes in competitive strength may be attributable to a number of factors such as differential rates of productivity growth in different countries, differential rates of increase of national price levels changes in effective exchange rates and differences in marketing skills, quality of products and salesmanship. To encourage exports a number of countries give rebates of import duties on raw materials used in export industries and rebates of direct taxes in export industries, exempt export goods from domestic sales and excise taxes and grant special import entitlements for their specific requirements to exporting firms. Over the years Pakistan has built up an elaborate structure of export incentives which contains all these elements. The details are provided in Appendix-I. It is apparent, therefore, that reasons for the minus sign of the "competitiveness" factor relate to some basic fundamentals. The variables that call for special attention are (a)

production pattern and comparative advantage (b) commodity concentration of exports (c) investment and capital output ratio (d) the rate of price inflation and national consumption and (e) behaviour of effective exchange rates. These have direct relevance to the strategy of export-led growth and are briefly discussed in the following paragraphs:

(a) Production Pattern and Comparative Advantage

As is well known, Pakistan's comparative advantage lies basically in agricultural production and in labour intensive lines of production in industry. However, the growth of both agricultural sector and the labour intensive industrial sector has been far from satisfactory during the seventies. The real value added in agricultural sector increased at an annual average rate of 2.7 percent which was less than even the rate of growth of population. The output of cotton, the main export crop of the country, has declined sharply over the years from 4 million bales in 1972-73 to 2.6 million bales in 1978-79. The output of the manufacturing sector as a whole increased at an average annual rate of 4.3 per cent between 1972-73 and 1978-79. It is noteworthy that the output of the main export industry, namely cotton textiles, declined during the period 1972-73/1978-79. The production of cotton yarn declined from 376 million kgs. in 1972-73 to 327* million kgs in 1978-79 while production of cotton cloth fell from 588 million sq. metres to 346** million sq. metres. Production of cement, which like cotton textiles is based on indigenous raw materials, at 2.9** million tons in 1978-79 was the same as in 1972-73. As a result of stagnation in cement production the country became a net importer of this item. In 1974-75 the value of exports of cement had amounted to Rs. 279.5 million.

(b) Commodity Concentration of Exports

Pakistan's exports show a heavy concentration in a few items. In 1977-78, of the total exports of Rs. 12.9 billion, rice, raw cotton, 'cotton yarn and fabrics', leather, 'petroleum and products' and 'carpets and rugs' accounted for Rs. 8.7 billion or 67 per cent. Any adverse development within the country or in the international market in case of these items can severely affect the country's total export

*Estimated on the basis of July, 1978-March, 1979 figure.

**Estimated on the basis of July, 1978-March, 1979 figure.

earnings. In the international recession of 1974-76 the trade in cotton textiles was most severely affected and this had a particularly damaging effect on the country's exports.

(c) Investment and Capital Output Ratio

The comparative advantage of Pakistan lies basically in lines of production having a low capital output ratio. The incremental capital output ratio has been quite high in the seventies on account of the decision taken to initiate a number of capital intensive projects at the same time. This has had an adverse effect on the "competitiveness" of the country as broadly defined in Constant Market Shares analysis. The growth in exports achieved despite a high capital output ratio is attributable to the fact that exports of a few products in sectors of high labour intensity increased substantially over the years. For instance, export of rice increased by 112 per cent between 1972-73 and 1977-78. Exports of carpets and rugs rose by 316 per cent during this period while those of tobacco raw and manufactured rose by 157 percent. Had some of these products not emerged as fast growing exports, the overall export growth would have been even slower.

(d) Price Inflation and National Consumption

A faster increase in the price level of a country compared to its competitors adversely affects exports. The trend in the price levels of certain countries which compete with Pakistan in export trade is shown in the following table :

AVERAGE ANNUAL INCREASE IN THE WHOLESALE PRICE INDEX (1972 to 1977)

Pakistan	+ 19.1
India	+ 10.8
Turkey	+ 20.1
Philippines	+ 19.2
South Korea	+ 20.3
Taiwan	+ 12.8

It will be seen that the rate of price increase in this period was about the same in Pakistan and Philippines. The rate of price increase was substantially lower in the case of India and Taiwan while Turkey and South Korea experienced somewhat higher price increase compared to Pakistan. However, too much cannot be read in these figures.

Various countries produce various kinds of goods in different proportions and hence the weights given to various commodities in wholesale price indices differ significantly. This detracts from the usefulness of using the wholesale price index as a basis for comparisons of export competitiveness. Moreover, the relative prices of various kinds of tradeable goods are continuously changing because of changes in technical progress and differentiated quality of products: this further reduces the utility of such comparisons. However, it can be said in general terms that the lower rates of inflation in India and Taiwan must have constituted an adverse influence for Pakistan's exports.

Apart from inflation, increase in national consumption at a rate much faster than the increase in national production has also adversely affected exports. The national consumption in Pakistan has risen at an annual average rate of 36 per cent between 1972-73 and 1978-79 when the GDP at current market prices increased by 32 percent during this period. The ratio of national consumption to GDP has increased from 86.5 per cent in 1972-73 to 93.7 per cent in 1978-79. From the point of view of generation of exportable surpluses it is specially noteworthy that the annual average growth of commodity producing sectors has been lower than GDP growth, being 27.6 percent (in current prices) between the period 1972-73 and 1978-79.

(e) Effective Exchange Rates

Since February, 1973 Pakistan has maintained unchanged exchange rate relationship with the U.S. dollar while several of its competitors like India, Taiwan, South Korea and Turkey have followed more flexible exchange rate policies. This may have had a bearing on slower growth in Pakistan's exports. Another feature that stands out is that effective import rates and export rates have behaved differently so that a net protective margin exists favoring import substitution at the expense of export expansion. The following table shows the trends:

"NOMINAL" EFFECTIVE EXCHANGE RATES FOR IMPORTS AND EXPORTS

Year	Effective Export Rate (a)	Effective Import Rate (b)	(Rupees per dollar) Net Protective Margin
1972-73	9.20	12.94	3.74
1973-74	8.07	11.91	3.84
1974-75	8.90	12.08	3.18
1975-76	9.25	12.56	3.31
1976-77	9.74	13.07	3.33
1977-78	9.64	12.84	3.20

$$\text{Note : (a) } \frac{\text{NEE}}{\text{S}} = \frac{(\text{Total value of exports} - \text{export duties})}{\text{Total value of exports}} 9.90$$

Where $\frac{\text{NEE}}{\text{S}}$ is 'Nominal' effective exchange rate applicable to exports.

$$\text{(b) } \frac{\text{NEM}}{\text{S}} = \frac{(\text{Total value of imports} + \text{imports duties})}{\text{Total value of imports}} 9.90$$

Where $\frac{\text{NEM}}{\text{S}}$ is 'Nominal' effective exchange rate applicable to imports.

In 1978-79, Government decided to allow a compensatory rebate on the export of finished cloth and made up textiles (including towels, garments, hosiery, canvas etc.) at the rate of 12½% of f.o.b. value of export and on cotton yarn and grey cloth at the rates of 7½% and 10% respectively raising the "nominal" effective export rate of about Rs. 10 per U.S. dollar. In the Budget for 1979-80 the facility of export rebate was extended to engineering goods and canvas footwear also, at the rate of 12½%.

Pakistan needs a much faster expansion in exports than achieved hitherto to bring about a significant improvement in its balance of payments. The strategy for an export-led growth needs to be evolved keeping in view the factors and developments discussed in the foregoing paragraphs. There is need for a substantial acceleration in the growth rate of the commodity producing sectors. Since the growth of agriculture has lagged behind the growth of population during the seventies, the need for substantially stepping up the growth rate of the agricultural sector is apparent. In the manufacturing sector, export industries need to be accorded priority. The investment strategy should aim at increasing output of labour intensive lines of production so that the capital output ratio is lowered. Investment with high import content should be kept to a minimum. Reduction in inflationary pressures and achievement of greater price stability would be crucial in bringing about a sustained increase in exports. The ratio of national consumption to GDP has to be brought down to generate larger exportable surpluses. In respect of exchange rate policy, the decision to allow export rebate on textile products and engineering goods is a step in the right direction. The situation should be kept under review and appropriate measures taken as warranted. Finally, further diversification of exports both in respect of commodities exported and the countries to which they are exported needs to be brought about keeping in view the changing requirements of world markets.

TABLE I: Growth Rate of Exports and their Ratio to G.D.P.

(Million U.S. \$)

Year	G.D.P. (At current prices)	Exports	Imports	Trade Gap	Exports as % of GDP	Exports as % of Imports	Trade Gap as % of GDP	Growth Rate of Exports
1972-73	5759	826.3	797.2	↕ 29.1	14.4	103.7	0.5	↕ 40.0
1973-74	8125	1026.4	1361.5	- 335.1	12.6	75.4	4.1	↕ 24.2
1974-75	10569	1039.0	2113.6	- 1074.6	9.8	49.2	10.2	↕ 1.2
1975-76	12264	1136.7	2067.2	- 930.5	-9.3	55.0	7.6	+ 9.4
1976-77	13705	1140.8	2324.5	- 1183.7	8.3	49.1	8.6	↕ 0.4
1977-78	15814	1311.2	2809.6	- 1498.4	8.3	46.7	9.5	↕ 14.9
1978-79	17945	1709.9	3675.6	- 1965.7	9.5	46.5	11.0	↕ 30.4

TABLE—II: Pakistan's Share in World Trade
Value in Billion of US \$

Years	World		Pakistan		Developing Countries		Non-Oil Developing Countries					
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports				
1972	413.867	430.185	844.052	0.687	0.682	1.369	71.380	71.990	143.370	46.380	58.190	104.570
1973	576.710	591.290	1168.009	0.958	0.978	1.936	106.890	99.900	206.790	67.690	80.000	147.690
1974	841.021	853.656	1694.677	1.113	1.732	2.845	216.210	164.740	380.950	98.010	130.840	228.850
1975	872.580	904.088	1776.668	1.031	2.153	3.184	203.859	189.757	393.316	93.870	138.452	232.322
1976	990.608	1016.019	2006.627	1.163	2.128	3.291	248.285	207.991	456.276	115.344	144.852	260.196
1977	1119.870	1152.619	2273.489	1.171	2.447	3.619	282.585	247.618	530.203	136.875	165.133	302.008
1978	1189.100	1230.900	2420.000	1.488	3.323	4.811	295.157	296.166	591.323	153.751	193.495	347.246
Years	Pakistan as % of World			Pakistan as % of Developing Countries			Pakistan as % of Non-Oil Developing Countries					
	Exports	Imports	Trade	Exports	Imports	Trade	Exports	Imports	Trade			
1972	0.17	0.16	0.16	0.96	0.95	0.95	1.48	1.17	1.31			
1973	0.17	0.17	0.17	0.90	0.98	0.94	1.42	1.22	1.31			
1974	0.13	0.20	0.17	0.51	1.05	0.75	1.14	1.32	1.24			
1975	0.12	0.24	0.18	0.51	1.13	0.81	1.10	1.55	1.37			
1976	0.12	0.21	0.16	0.47	1.02	0.72	1.01	1.47	1.86			
1977	0.10	0.21	0.16	0.41	0.99	0.68	0.86	1.42	1.21			
1978	6.13	0.27	0.20	0.50	1.12	0.81	0.97	1.72	1.39			

SOURCES: U.N. Year-books of International Trade Statistics and I.F.S.

- EXPORT INCENTIVES IN PAKISTAN

(a) Fiscal Concessions :**(i) Rebate of Customs Duties :**

The Customs Rebate Scheme was introduced in 1957. Under this Scheme full rebate of customs duty paid on imported raw materials to be used in the manufacture of goods is granted when such goods are exported. Rates of rebate were fixed pro-rata per unit of export and notified by the Central Board of Revenue. Recently, in order to facilitate prompt payment of rebates, standard Customs rebates on 48 items have been fixed. To further simplify payments of standard rebates to exporters of manufactured goods a Directorate of Rebate has been set up in the Central Board of Revenue.

(ii) Rebate of Excise Duties :

Excise duties leviable on finished products or the element of excise duty in raw materials used in the manufacture of goods are refunded when such goods are exported. A manufacturer can ship such goods direct from the factory without payment of excise duty. In the case of exporters who are not manufacturers, licences for bonded warehouses are issued to such non-manufacturing exporters, where they can stock goods without payment of excise duties pending export. Recently, in order to facilitate prompt payment of rebate, standard excise rebates on seven items have been fixed and the establishment of a Directorate of Rebate as mentioned earlier, will further simplify matters.

(iii) Refund of Sales Tax :

Sales tax leviable on finished goods or the element of sales tax levied on raw materials, imported or locally purchased which go into the manufacture of finished goods, is also refundable when such products are exported.

(iv) Income Tax Concessions for Export Earnings :

This Scheme was introduced on 1st July, 1963. It provides preferential treatment to income tax assesses in respect of incomes

which include profits and gains derived from the export of goods. Income earned from exports is exempt from income tax upto 55 per cent.

(b) Monetary Measures :

(i) Scheme for Financing Exports of Locally Manufactured Machinery :

The Scheme was introduced by the State Bank in November, 1972 to cater for export credit both at pre-shipment and post-shipment stages for the export of locally manufactured machinery. The State Bank provides through Commercial banks, both pre-shipment and post-shipment finance to the exporters of such machinery at a rate not exceeding 2 per cent per annum. The banks concerned are eligible for refinance by the State Bank under the Scheme at the zero rate of interest. The period for which the State Bank rediscounts or grants refinance facility shall not exceed ten years.

(ii) Export Finance Scheme :

The Scheme, which was launched in February, 1973 provided for concessionary refinance by the State Bank to scheduled banks against their loans for financing exports of non-traditional and newly emerging export commodities. In May, 1976 the Scheme was renamed as "Refinance Scheme for exports" and was made applicable to all manufactured goods. In October, 1977 the Scheme was further liberalised and renamed as "Export Finance Scheme" and a new dimension to the facility was added. Not only export finance is provided by scheduled banks on case by case basis against confirmed irrevocable letters of credit or firm export order but export finance limits are also given by the banks to exporters on the basis of previous year's export performance. Exporters are eligible to obtain export finance under both parts of the Scheme.

Concessionary export finance is provided by the banks under both parts of the Scheme for all commodities except raw cotton, wool, rice, hides and skins and leather wet-blue. With effect from 1st July, 1978, the interest rate has been reduced to three per cent per annum whether or not refinance is obtained from the State Bank. The State Bank charges no interest on the amount of refinance which the banks obtained from the State Bank.

(iii) Export Credit Guarantee Scheme :

The Scheme was introduced by the Government in 1962 to provide credit insurance to Pakistan's exports both at pre-shipment and post-shipment stages. The Scheme which was due to expire in 1980, has been placed on permanent footing. It aims at encouraging provision of export credit by the banks and enables exporters to export with confidence. The Scheme is administered by the Pakistan Insurance Corporation and covers all goods wholly or partially manufactured or processed in Pakistan except, raw jute, perishables and bulk food-grains. The Scheme envisages following types of guarantees :

(a) Pre-Shipment Export Finance Guarantee :

The guarantee is provided to banks to indemnify them against failure of exporters to repay the loan. The Scheme guarantees to pay $66\frac{2}{3}$ per cent of the amount of any loss which the bank may sustain on advances for exports. The premium charged is 10 pisas per Rs. 100 insured per month which works to 1.20% per annum.

(b) Post-Shipment (Comprehensive) Guarantee :

A Comprehensive guarantee is provided to exporters to indemnify them against major risks of trading overseas. The Guarantee begins on the date of shipment and continues till payment is received in Pakistan. The guarantee provides cover to the extent of 80 per cent and 90 per cent in the case of commercial and political risks respectively. The rate of premium is about 65 pisas per Rs. 100 sum insured. The risks covered are :

- (i) The insolvency of buyer abroad and his failure to repay; and
- (ii) the political and economic risks inherent in trading overseas.

(c) Commercial Policy :

(i) Special Licensing Facilities to Export Industries :

Industrial units (recognised or unrecognised) other than cotton textiles can obtain import licences against performance up to a specified percentage of the F.O.B. value of their exports. These licences can be utilized for the import of specified items of their production requirements including packing material. Additional

licences against exports can also be obtained in advance subject to production of an undertaking and bank guarantee. Export-oriented industrial units have also been allowed to import industrial machinery upto Rs. 25 lakh on the recommendations of the Licensing Board provided they submit a bank guarantee to export products manufactured by such machinery for a value equal to double the amount of import licence.

(ii) Import of Banned and Tied List Items from World-wide Sources Against Export Performance.

Import of raw materials on tied list or those which are banned for import, if required for actual use in the manufacture of goods for exports, is also allowed upto a specified percentage of the F.O.B. value of exports. Raw materials not covered by the Scheme are considered favourably in all genuine cases.

(iii) Pay-As-You Earn Scheme :

The Scheme, originally introduced in 1962, was designed to encourage entrepreneurs to import plant and machinery for the establishment of industrial units on credit and to pay for the cost of machinery and equipment so imported and other permissible charges in foreign exchange out of export earnings of the unit. The scheme was first modified in January, 1967. The main features of the Scheme are :

- (a) Plant, machinery and equipment can be imported from such suppliers who are willing to accept payment over a period of time out of the export earnings of the unit after it has been installed and began production.
- (b) Machinery and equipment can also be imported for balancing, modernization, replacement and expansion under the scheme.
- (c) Machinery which can be manufactured locally upto required specification will not be allowed to be imported.
- (d) Units to qualify under this category must give a guarantee to export 50 per cent or more of their total output. In special cases such as engineering goods, the limit for this purpose may be reduced to 25 per cent in first three years and 33 per cent thereafter.

(e) The Government or the State Bank provides counter guarantee of repayment as a primary obligator. The Government may also allow advance payment in foreign exchange for purchase of plant and machinery upto 15 per cent of the C and F value.

(f) Projects established under the Scheme are allowed a maximum of 50 per cent of the F.O.B. value of the their foreign exchange earnings for meeting their debt liability and other foreign exchange payment on account of royalty, technical fees etc. If in any financial year the debt service liability can not be met out of the prescribed percentage of earnings in that year, foreign exchange to the extent of shortfall would be provided at the official rate of exchange but subject to a penalty amounting to 27 per cent of the shortfall.

(d) Other Measures :

(i) *Concessional Inland Freight Rates for Export Commodities.*

The railways have introduced concessional freight rates for approximately 30 export commodities. The concessional rates operate either in the form of reduced rates payable at the time of booking or rebate system in the case of those items where the benefit of the concession may be misused by consumption of the goods in port areas after paying freight at the reduced rates.

(ii) *Facility for Business Travel Abroad :*

With a view to promoting country's exports, exporters having export earnings of not less than Rs. 25 lacs in the preceding year are issued blanket permission by the State Bank valid for a period of six months against which they can purchase tickets and draw foreign exchange for their business visits abroad which they may wish to undertake during the validity of the blanket permission.

(iii) *Establishment of Offices Abroad :*

Exporters with export performance of Rs. 5 million or above a year can establish their offices abroad. To encourage export of non-traditional items, it has been decided to allow exporters with a minimum export performance of Rs. 2 million to set up offices abroad for which foreign exchange worth up to \$ 20,000 will be issued in each case, to meet the initial expenses for establishing the office.

Climate, Food and Population : PROSPECTS FOR A MANAGEABLE FUTURE

Walter Orr Roberts

I. Introduction

We are asked in this Conference to seek creative solutions to problems that imperil our planet, to generate new perceptions of how to attain sustainable growth within the finite resources of our good Earth, to visualize how human needs can be met in every corner of the globe. But I hope you'll forgive me if I approach the state of man first from a cosmic perspective.

Harlow Shapely wrote a book in the 1930's called *Flights from Chaos*. It has greatly affected my world view. "It is fortunate," he wrote, "that we are customarily unaware of our twisting, slipping, whirling, flying motion through space: we might otherwise lack the courage to explore and analyze the surrounding world."

We earthlings are fortunate, he wrote, that we do not directly sense the spin of our globe on its axis propelling Houston ever eastward at almost 800 miles per hour. Fortunate that we fail to feel our planet's monthly oscillation towards and away from the Sun as we pivot, at 30 miles per hour, about the center of gravity of the Earth and Moon system. Lucky that we neither sense Earth's 600 million mile circuit of the Sun at 20 miles a second, nor the synchronized tilting of its rotational axis. Favored that we have no sensation of our 150 mile per second headlong plunge, Earth and Sun together, towards the constellation Cygnus, which we in the Northern Hemisphere see high overhead on late summer evenings. We are even spared everyday consciousness of participating in the vast inexorable cosmic explosion: that most fascinating mystery of our expanding universe, its hundred billion sun-like stars, and its speed-of-light borders.

Courtesy : Woodlands Conference, 1979.

We are blissfully unaware of these gyrations. Had we been hourly forced to be conscious of the plunges and twists of our planet in its headlong flight through the cosmos, we might never have had the serenity to compose the music of Palestrina, to write the plays of Sophocles, to paint as Rembrandt or Picasso. Perhaps if we had been conscious, from moment to moment, of our breathtaking speed in space we would have been distracted from mathematics, science and engineering or even from the possibilities of applying the products of human imagination to achieving peace, justice and the equitable access of all humanity to the richness of our earthly abode.

Man's occupancy of planet Earth has been but a mere moment in the life of the planet itself—perhaps a million or so of its many billions. Yet in this moment, due to evolution of high order intelligence adaptability, *Homo sapiens* not only dominates the planet but expands his numbers and extends his exploitation of earthly resources at a cataclysmically accelerating pace.

Human perspectives have also altered drastically. Our world view changed forever with that first human footprint on the Moon and those first close-up views of our unimaginable sister planets, Venus, Mars and Jupiter. These events shocked us into an awareness of the speed and fundamental nature of the revolutionary changes that characterize these latter years of Century 20.

Not only in space research, but in every domain of science and technology we see ever more rapid advances in the process of control over nature. We are characters in the now-expanding chronicle of man's governance of Earth. The challenge we face is to be not passive but active characters in this drama, and by our efforts to bring rationality, wisdom and compassion to the governance of human affairs within the plentiful but finite resources of our biosphere. Through mindful use of our goods, human and material, we can indeed bring about the growth of limits to the quality of life and to the numbers sharing in this enlargement.

I shall now endeavor to illustrate this thesis from the viewpoint of our Aspen Institute program concerned primarily with food, climate and the world's future. What follows has been written in collaboration with Lloyd E. Slater, who manages the Aspen Institute's industry-supported Food and Climate Forum.

II. The Prospect We Face—A Pessimistic View

Many analysts's of today's world visualize a gloomy future prospect. They see us beset by a world population growth rate that leads towards a doubling within the next 50 or 60 years and, ultimately, a possible tripling of today's numbers before nature or man exerts control.

Coupled with this soaring growth in people is rising energy demand as the poor nations seek a share in world energy usage at, they deem only just, a favorable low price. This is in the face of dwindling cheap oil or gas and mounting environmental ravages from non-renewable coal extraction to meet mankind's rocketing demands.

We have chosen the years 2030 to 2040, fifty or sixty years hence, as an arbitrary reference time because it seems that by then not only will the world's population be doubled, but its food demands will be tripled and its energy appetite quadrupled. Moreover, by that date the atmospheric burden of carbon dioxide will be doubled as a result of consumed fossil fuel and reduced world forestation. Most climate experts anticipate from this a climate warming without precedent since the dawn of human history. Furthermore, within fifty to sixty years it is expected that little if any new land will remain to be opened for agriculture, and that much of today's more marginal land will have been ravaged by salinization and loss of topsoil due to overcultivation, inadequate and inefficient irrigation water, and high fertilizer costs.

Let us now briefly consider some of today's prevailing outlooks for a year 2040 scenario :

1. *Climate variations and bad weather extremes will continue to hurt agricultural food production.*

Figure 1 shows how grain production varied in the three major growing nations in 1960-77. Together the USA, USSR and China today produce almost half of the world's yearly harvest of about 1300 million metric tons of grain.

Weather had a big impact in the Soviet Union where shortfalls of 30 to 50 million metric tons happened during recent bad years. Notice especially the dip in 1975. USA production fluctuated as much due to changing policies (land withheld from production under federal cash incentives) as to weather, although the big

crop loss in 1974 was clearly weather-related. China's productive stability is generally credited to good weather, intensive irrigation, and intensive care in cultivation, though some experts suggest the

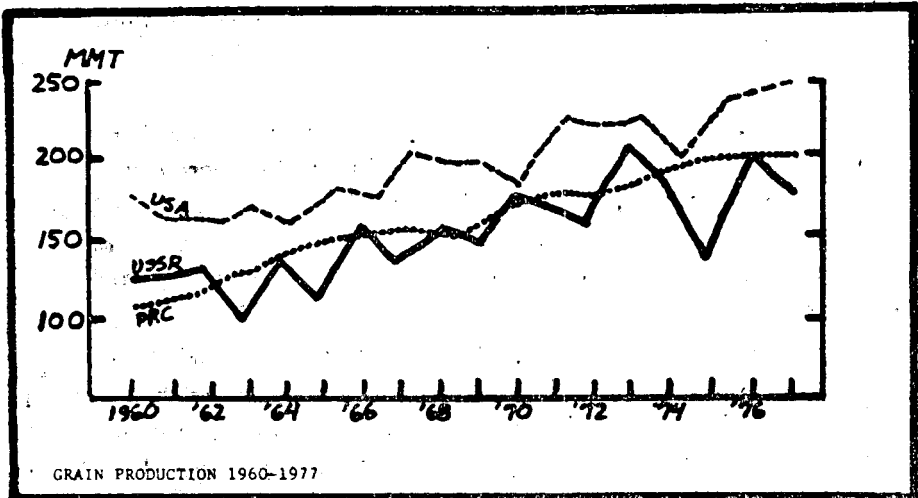


Figure 1.

Adapted from Schmittker Associates, 1978

figures may be smoothed out before release. In any case, variations of only a few percent in the yearly harvests of any one of "the big three" will profoundly affect the availability and price of the grain needed by the import nations. In 1972-73, for example, a downturn of only about 2% was followed by large reductions in world reserves and a tripling of prices.

It is a widely held capitalist nation perception that American or western agricultural practices yield vastly higher production rates than those of the Soviet Union. We often say that this comes about because of the alleged low incentives and the bureaucratic inefficiencies of Communism. It is the view, however, of a number of our own western experts who have travelled extensively in Soviet agricultural lands that the demeaning yields are mostly the result of a harsh and unfriendly climate. Russia, if it had the relatively benign climate of America's vast Midwest breadbasket, could probably flood the world with export grain even under Communist management. Moreover, the People's Republic of China, despite limited mechanization, is a food-producing marvel, furnishing modest but adequate and steadily improving nutrition to nearly four times as many people as the U.S. on about half the amount of cultivated land that we use.

But to return to the main theme, history tells us that weather and climate fluctuations can bring on, directly or indirectly serious foodcrop shortfalls, regional famines, and untold human suffering. Millions died in the grim drought of 1899 in India. In modern times we have seen the food disasters in Ethiopia and the Sahel region of Africa as overstress of land, economic exploitation and drought conspired to bring vast human misery. Even in an advanced nation like the U.S. the severe drought of 1930's in the Great Plains coupled with a deep economic recession resulted in abandoned farms, blowing topsoil and the greatest out-migration in our nation's history.

There is every expectation such disasters will repeat and. *IF* human societies continue to grow more and more unstable, future weather and climate anomalies will undoubtedly wreak as great or greater future human havoc. The big question, however, for us is: must these disasters occur? Is there any reasonable way to avert or control them?

2. *Most nations of the world will depend increasingly on imported food to meet nutritional goals.*

In recent decades the world distributive system moved vast quantities of available surplus food—mainly grain—to ameliorate local shortfalls and famines. At the same time, as Figure 2 illustrates, there has been a dramatic change in world grain trades since World War II, with most former exporters relying now on imports mainly from the North American breakbasket. This trend away

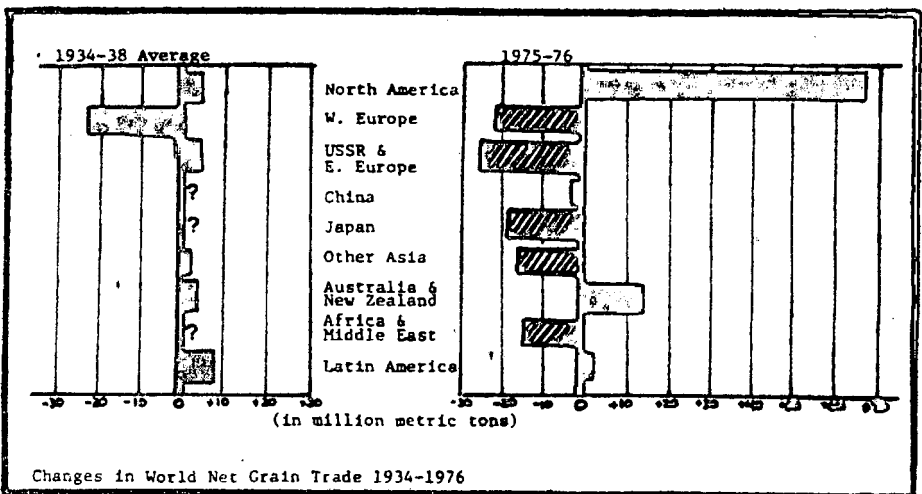


Figure 2.

Adapted from *Scientific American*, September 1976

from food self-sufficiency is expected to intensify, with the poorer nations excluded from necessary and emergency food imports by the disappearance of surplus grain as prices rise and supplies dwindle. And the disturbing question might well be asked: Will there still be important emergency food sources available in the world in the next century?

3. *Debilitating malnutrition will engulf more and more people and further widen the gap between affluent and imperished.*

While localized climate-induced famines are sharp reminders that we face a world food crisis, the chronic malnutrition of the poor of the developing nations is a less dramatic yet more fundamental expression of the problem. Simply producing more food is clearly not the answer. During the past decade, while food production figures everywhere moved steadily upward, the amount of calories and protein reaching poor people in developing countries steadily declined. Figure 3 reveals the situation today where a large fraction of the world's people—an estimated half of the population in most Third World countries—get less than the average

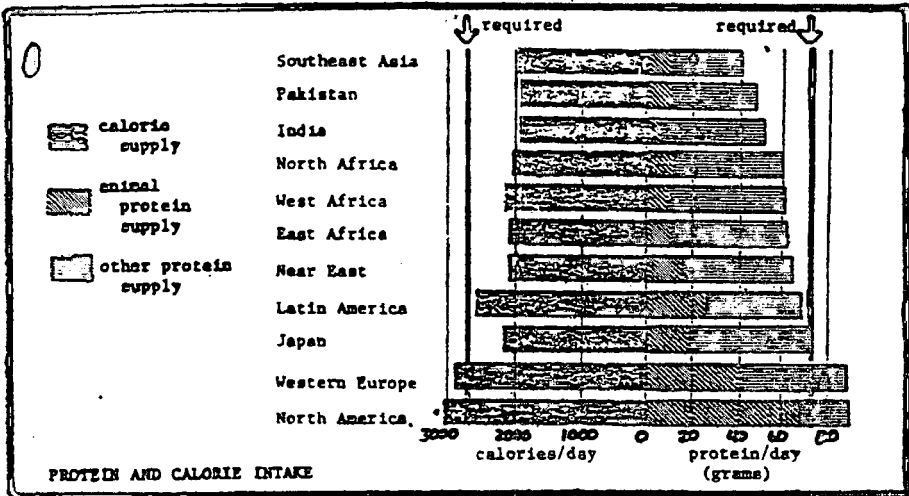


Figure 3

Source: FAO, 1970

minimum 2700 calories and 75 grams of protein deemed necessary for vigorous human growth, mental development and continuing body strength. Some of the more obvious side-effects of this tragic situation give us serious worry about any world future scenario. One is increasing migration of rural poor to misguidedly seek urban "security" through more readily available food or increased income

to buy food. Usually neither happens. Less obvious and infinitely more complex is the relationship between poverty, malnutrition and total population growth. It raises perplexing questions such as: Is rapid population growth an effect rather than a cause of malnutrition? Or, conversely: Will better food supplies and distribution furnish the incentive or otherwise help encourage family planning:

Our list of trends and conditioners for a Year 2040 World Food Scenario could obviously be a long one. We have chosen only three—climate, food productivity and the malnutrition issue—because they are so fundamental to the theme of this paper. Other equally powerful shapers of the scenario should have high priority in our thinking. One is our energy habits. Another is the increasing tendency of all nations to invest vast resources, talent and capital in military systems. Still another is our tendency, so to speak, to foul the human nest by polluting the air, the lakes and rivers, and the oceans of the world.

III. Where will it all Lead—The 2040 Scenario.

Where will all these ongoing trends and conditioners—these widely held perceptions of hungry mankind constrained by ravaged environment, limited resources, and the innate foibles of human nature—take us in fifty to sixty years? What picture should we paint of the climate/food/population interaction in the Year 2040?

The pessimistic view that many hold paints a grim picture of the environment that world strife for food will produce. It is an appalling vision of degradation and depleted resources. Oil and gas will be exhausted, nuclear power dangerous to use, energy from coal either highly expensive, environmentally destructive, or both. Vast amounts of woodlands removed for food production and fuel will in this ominous scenario encourage the washing and blowing away of topsoil and a general worldwide decline in farm productivity as clean, sweet water becomes too expensive for agricultural use. Stressed use of marginal arid lands add untold millions of hectares to the world's deserts. World climate, perturbed by man's effects, will be less favorable for increasingly necessary food production. And man's air pollution and waste carbon dioxide, along with widespread forest degradation, will begin to alter world climate in a way that impairs agriculture. All of this will contribute to a faltering world food system.

What about people in this pessimistic scenario? Will war be a greater threat, a grimmer reality? Will we face food riots and major conflicts for access to the sources of food production? Will the population growth still be rampant? How many of those 8 or more billions of 2040 A.D. will have adequate nutrition, economic and political freedom, comfortable shelter, compassionate health care, full educational opportunity? How many will remain as today, surviving pitifully, desperately malnourished and dying of the many diseases that breed on hunger, devoid of joy for the present or hope for the future?

If 2040 brings but an extrapolation and heightening of the problems of 1980, what can we think of ourselves? Is this the world for creatures that can today walk on the moon, live for months in deep space, send their artifacts to other planets, and transmit messages among the stars? Is this the world for men and women who will in 2040 harness the atom and the Sun, carry vast electronic libraries in their pockets, write incredible new symphonies, perhaps even converse regularly with intelligent cosmic neighbors?

IV: Challenging the Future.

Just how valid is this fear of a hungry, strife-filled, resource poor, people-polluted world? This is a hard matter to judge, for it depends strongly on the nature of man and character of human nature. It relies on the strength of common resolve among the world's diverse people to cooperate in preserving values that have created a possibly unique experiment of intelligent life on an astronomical body. Some, like Robert Heilbroner, take a gloomy view of man's ability to overcome his present myopic, selfish, greedy and narrow nature. Others, like the two of us, are far more sanguine. We see the goal of a far different and happier world as attainable and the challenge one that both demands and merits the best that is in the nature of humankind. We shall elaborate on this in the pages to follow.

What the future brings in 50 to 60 years will probably be least of all what one derives from simple linear or quadratic extrapolation. Rather it will be the result of forces strongly affected by human intervention, brilliant or mindless, compassionate or ruthless. It will be the work of leaders and of followers, good or bad, strong or weak. It will gain its impact from the still exponentially growing

control of nature that comes, whether we like it or not, mostly from the product of science and technology wielded by the hands of man and women in power be they of noble purpose or of evil design or of stumbling incompetence.

If there is an imperative for today, however, it is that the new conditions of this planet - with all of us drawn closely together, and every day still more closely—demand active participation in the drama of history that we are writing. We must bring rationality, wisdom and compassion to the governance of human affairs: to the husbanding of our planets' goods, human and material.

The question is what is rationale, what wisdom, what compassion? With our world today segmented into many value systems, the choices are wide and varied. One's outlook is conditioned, strongly or subtly by the society where one resides as well as the culture and knowledge one has absorbed. The dynamic competing forces of communism, socialism and capitalism all pose alternatives in human thought and response. Yet people in all societies, and especially those most prone to be active characters in the drama of history, usually share the same pride in the accomplishments of science, the same joy in the beauties of art and music, the same gratifications for work well done, the same desire for the pleasure of leisure occupations. Our hope, given these shared joys and hopes of humanity, is an eventual harmonious coexistence of the diverse perceptions that define our societies and shape our futures . . . and that differences between ideologies will resolve in a stimulating contest in the world of ideas and good works rather than in war or use of force to validate human performance or loyalty.

Let us turn again to some of the problems and limits perceived in such dire fashion by those more pessimistic than we about future human prospects, for they do indeed describe our obstacles. Briefly they suggest that :

- climatic variability, impacting on food growing, is an incontestable adverse force ;
- the limits of arable land are just about here, those for quality fresh water will soon follow :
- cheap energy is running out, hence high productivity, mechanized farming is doomed ;

- producing food by alternative technologies will never successfully compete with conventional agriculture ;
- livestock, because of their inefficient conversion of feed grains will eventually disappear in the world food system ;
- farming in the tropics, where most food problems are, is inherently marginal, hence food self-sufficiency in many tropical nations is an unattainable goal ; etc. etc.

These issues and many more need careful analysis. It is my thesis and that of my colleague Lloyed Slater that for each there is a constructive counter-prospect. We believe that for each an answer can be given that brings hope for a better life in 2040 A.D. But we are aware that the costs of some of the answers will be high, and that the social innovation required for others may strain our style and values.

A recently completed major work of the International Federation of Institutes for Advanced Study (IFIAS), co-sponsored by our Aspen Institute program, illustrates our view. For the past three years, working with a worldwide team of investigators, Dr. Rolando Garcia, a distinguished Argentinian meteorologist and scholar, assessed the many facets behind the so-called world food crisis that climaxed in 1972 with a series of severe droughts in the Soviet Union, African Sahel, India and elsewhere. A telling commentary on the findings of this ambitious project is the title of its book, soon to be published by Pergamon Press. It is called *Nature Pleads Not Guilty*.

The Garcia study strongly challenges many conventional perceptions, particularly those in our western society, on the forces that shape any future world food scenario. In essence the study proposes that the 1973 depletion in world grain resources, the subsequent escalation in grain and food prices, and increasing hunger and malnutrition among the poor were inevitable sooner or later with or without the bad weather that surely triggered them off ; they are, says the study, much more a result of misdirected human policies and undampened human greed than the product of natural calamities. Bad weather merely hastened the process of collapse.

V. Understanding the System—A Dynamic Viewpoint

As the work by Rolando Garcia and his team demonstrates, enlightenment in our complex world rarely comes through simple analysis of obvious cause and effect relationships. Most problems

of society result from intricate, subtle and often hidden interactions. Professor Mesarovic, in a study of the Club of Rome, puts it well when he describes societal problems as almost always multilevel, multidisciplinary, multidimensional and, we might add, multimind-boggling in their complexity. Above all, today's societal problems represent *systems* that are dynamic in behaviour and, thanks to man's constant intervention, always in a state of change.

So if we are to form and assess new perceptions on climate, food, water, land use, energy, or include any of the problems of the human prospect, it is essential to understand how all these elements integrate or interact as a "system." The need for this holistic approach is a compelling one. True, it is easy to give lip service to the "systems approach," but is fiendishly difficult to carry out well, and when one finishes up the results are usually controversial. We suspect that some of today's misleading pessimism, particularly in our Judeo-Christian society, is rooted in a righteous and simplistic cause-and-effect viewpoint or ethic; there are good guys and bad guys, and one wins and one loses. While this may make for good cowboy movies, it hardly begins to describe the modern world.

Behaviour and achievement in a complex problem area, such as that embracing Climate, Food and Population, defies prediction through such simple linear analysis. Rather, the many elements involved interact to form a dynamic feedback system where failures and successes in any one component, as well as in the system itself, are greatly influenced by the performance of all other components.

When a person employs simple cause-and-effect or intuitive analysis as the basis for actions to ameliorate a complex problem, the results, as Jay Forrester so aptly puts it, are often "counter-productive." A classic example is what happened in the African Sahel after an extended plentiful rainfall period when well-intentioned funds from international aid organizations were poured into drilling deep tubewells to water the flourishing livestock herds. This caused formerly nomadic herdmen to settle around the new water sources. A subsequent concentrated overgrazing and trampling of vegetation paved the way for severe soil erosion and desert when the dry climate returned. The net result was a series of desolate wells surrounded by desert scattered with the carcasses of dead animals.

VI. Forming New Perception - Or, Reshaping the Old

While the systems approach is a cogent way to expose outmoded perceptions, it also stimulates alternatives for their replacement. Old ideas and viewpoints can be weighed against promising new technology and alternate policies. Using computer-held models of the system, such as the world food system model prepared for the Club of Rome by Mesarovic and Pestel, these alternatives can be previewed in scenarios of the future before their widespread use in the real world by enlightened governments.

A recent conference held by our Aspen Institute program to consider the effects of a hypothetical global warming due to an increased carbon dioxide burden in the atmosphere illustrates application of the global modelling and scenario technique. The methodology suggested by conference participants entails a variety of possible future climate scenarios some based on unusually warm periods in the past. These scenarios will be used to preview the economic, social and political consequences which are liable to result from a global warming. While not construed as a forecasting tool, the results may help identify vulnerable regions on the Earth and suggest adaptive political and technological changes.

In the remainder of this paper we will question many presently held viewpoints, particularly those half dozen referred to earlier, that suggest a hopelessly underfed world fifty years from now by posing some promising possible alternatives.

The Climate/Environment Impact

Must we consider continuing bad weather and deteriorating environment as inevitable shapers and limiters in our future world system? There are far too many interesting developments under way right now which could diminish these influences.

The prospects for anticipating and reacting defensively against bad weather in food production are most encouraging. While forecasts which can be furnished to farmers are at present only considered reliable up to five days, there is concerted world effort to extend this to a useful "reactive" period, which might be one month or more. It's not certain how far this will succeed. Much hope rests on new understanding of how weather systems work. A good deal of this is expected to materialize from the massive amount of information being generated by the Global Atmospheric Research Program

(GARP). GARP, with 5,000 specialists and 72 nations participating started collecting data on weather and its influencing environment using ships, aircraft, balloons, satellites and instrument platforms in 1974. This past year an intensive GARP effort, assessing whether readings from all over the world for 12 month period, furnishes forecast modellers an opportunity to compare what was predicted with what actually happened. This will be especially useful to general circulation model builders like Leith and his global weather forecasting group at NCAR, Smagorinsky and colleagues at the Geophysical Fluids Dynamics Laboratory of NOAA at Princeton, and to the team working with Gates at Oregon State University.

But even if a forecasting breakthrough is achieved at one month or one season lead-time, we face a real problem in getting localized bad weather predictions out to farmers in a form that will permit real agricultural strategy decisions to be beneficial. Some help may be on the way here in a growing vigorous field of technology called crop/weather modelling. One example, developed by Control Data Corporation is shown in Figure 5. By adding agronomic, crop physiology, and historical data to real time incoming weather information it becomes possible to forecast an actual shortfall or crop failure and carry out crop protective measures or strategic replanting. For the past few years this system has been experimentally monitoring the complete soybean and corn crops of midwest America. Control Data is also collaborating with our Aspen Institute Food and Climate

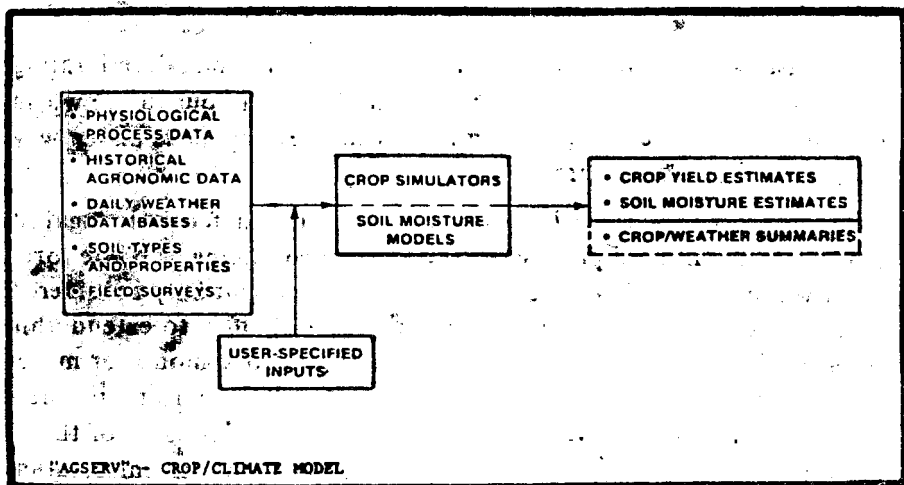


Figure 5

Source: Control Data Corporation, 1978

Forum in a project in Venezuela to adapt this technology to the needs of a developing country and its agricultural and food distribution system.

Many institutions and individuals are presently at work perfecting crop/weather models. A group at Purdue University, for example, has concentrated on developing quantitative relationships between weather, soils and crop growth. They have come up with an Energy-Crop growth index which follows weather effects on a day-to-day basis. Another major activity is the LACIE, or Large Area Crop Inventory Experiment, which was launched under the sponsorship of NASA, USDA and NOAA in 1974. The LACIE effort developed an experimental system to monitor and estimate yield projections of wheat production throughout the world using remote sensing imagery from space, ground station weather and other environmental data. It is anticipated that LACIE technology will be adopted to inventory production of other food and fiber crops including corn, rice, soybean and forestry products as well as monitor the world's important rangelands. This increased capability could conceivably be developed and completed in the mid-to-late 1980's.

Defensive measures by farmers against predicted or predictable bad weather or unfavorable climate are not limited to emergency action such as early harvesting, replanting or massive irrigation. They also include agronomic improvements which essentially reduce the vulnerability of their crops and fields to nature's vicissitudes. Some are newly revived ancient water conserving techniques that were swept away by the high-efficiency monoculture farming now in practice. They include windbreaks, strip-cropping, sub-soil irrigation, inter-cropping, crop rotation, evaporation control and mulching. Most of these were arrived at over the centuries to conserve water and erosion and increase the possibility of a successful crop despite unexpected weather calamities. Modern agricultural science is also adding to the climate-defensive arsenal by studying the relationship between crops and their environment to find ways, via cultivation, fertilization or genetics, to reduce water needs and improve photosynthetic efficiency, or to stabilize water supplies to crops through improved irrigation practices.

An even more hopeful expectation that more food can be grown in the world despite climatic limitations is suggested in Figure 6, an analysis of the climate regimes and their food growing possibilities

in the developing countries of Africa and Asia. Far too often what is grown and how the land is used does not match well the local climate conditions or local food needs. In predominately dry Mali, West Africa, for example, cotton and rice which have high water

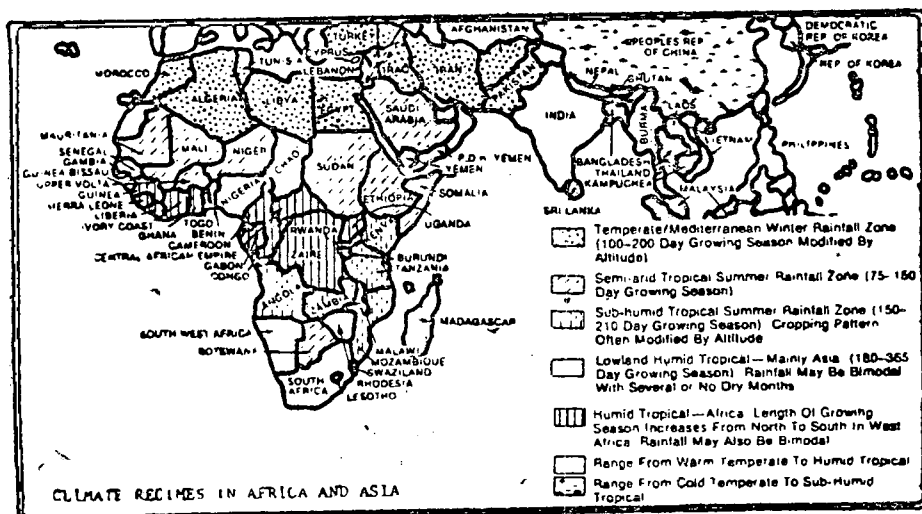


Figure 6.

requirements are grown extensively for export. Yet during the severe Sahelian drought of 1968-71 when cotton, rice and groundnut production, all for export, reached record highs, corn production for local consumption fell by one-third and many starved. This pattern which prevails through much of the tropical developing world, could be changed, through enlightened government policies and incentives, to vastly improve the stability and availability of food supplies for local, at present malnourished, people. Some quite responsible exports, like Peter Buringh and colleagues at the Agriculture University in Wageningen, the Netherlands, estimate that world agricultural production could be doubled and doubled again with no increase—indeed with a decrease—in the land under cultivation.

The Limits of Resources

Land, fresh water and energy are the primary resources of agriculture and the widely held view is they are fast reaching their limits. Can this perception be challenged?

If one looks at the hard numbers in Figure 7, a map showing present cultivated area as a percentage of all potentially arable land, the situation does not look too hopeful. Only Africa and South

America seem to offer some hope for significantly increased food production through expanded acreage. But both have serious regional problems which make that promise difficult to achieve. Some 700 million hectares of sub-Saharan Africa are closed to cultivation and foraging because of the tsetse fly and onchocerciasis, the rever-

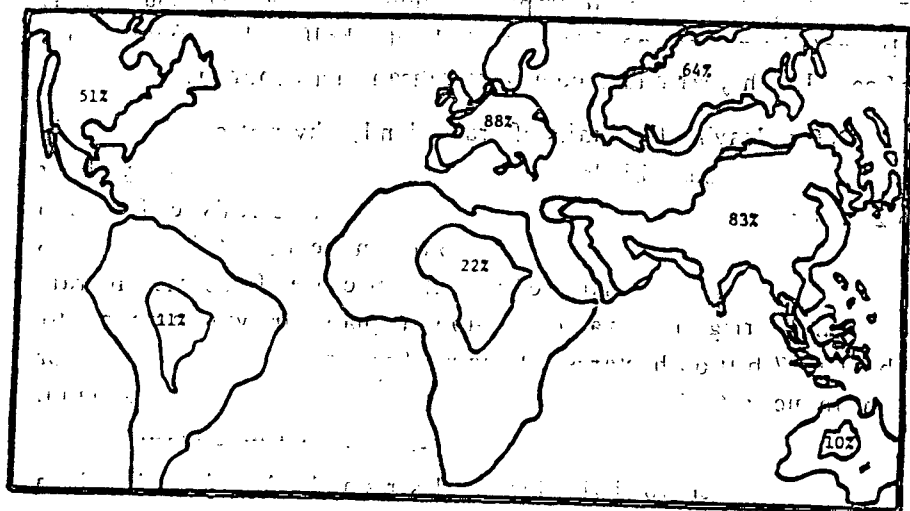


Figure 7: Source: *Scientific American*, 1976.

blindness disease. Heavy tropical rains and leached, generally low fertility soil hinder further agricultural development of the vast Amazon region.

The issue, however, is agricultural production and not how many more acres can be squeezed from the earth for farming. Only a small fraction of the world's arable land now in use is being formed productively, if crop yields in Japan, China, North America and Western Europe are hallmarks for efficiency. India, with its 623 million people greatly dependent on locally grown food and one-third less arable land than the U.S., offers a good example of the possibilities. In 1950, foodgrain yields in India averaged less than one ton per hectare, about one-fourth of the equivalent crop yield in the U.S. Concerted national effort to increase productivity has raised yield to a present average of almost two tons per hectare. Now the fourth largest grain producer in the world, India could become the leader were it to obtain maximum crop yields and fulfil its tropical potential for growing two grain crops per year on the same land.

India's food production success story, as yet only partly fulfilled, could be duplicated in many other developing countries where land is being used at marginal efficiency. Nigeria, most populous country in Africa, is a good example. About a third of its presently cultivated land is in cereals, with an average yield of 0.6 tons per hectare. Responding to a drive to improve productivity, Nigeria could easily eliminate its present need to import about a half million metric tons of cereal each year and become a significant net exporter.

Before leaving the limits of arable land, why not consider briefly the limits of unarable land. It has been estimated that only about 3.2 billion hectares of the total 13 billion on the Earth's ice-free land surface can be cultivated. Now only one-tenth of this area grows crops. Desert soils considered unarable because of insufficient rain or nearby irrigation water to support plant growth, amount to about 1.7 billion hectares. Imagine if water could be brought or rain induced to fall onto these enormous tracts of desert wasteland. There is potential for actually doubling today's farming area.

The prospects for irrigating the deserts and otherwise using them productively keep improving. Those desert areas near the sea are being made to bloom through exciting work on saline irrigation and salt-tolerant species by the Israelis and others. Vast untapped sources of underground water are known to be available, many below the deserts; only an estimated 1% of the world aquifer has been drawn up thus far for irrigation. With almost uninterrupted, intense sunlight and cheap land, the deserts are also highly eligible for green house and hydroponic production of foodcrops. Fast developing technology in controlled environment and soil less farming, producing yields many times that of conventional agriculture, are rapidly improving cost-effectiveness in this essentially climate-independent form of food production.

Some futurists now claim that water, not land, could become the principal restraint on world food production. Although water covers 70% of the Earth's surface, only 1% is the fresh water required for conventional farm irrigation, and of that, 99% is underground. Nevertheless, large quantities of easily available fresh surface water remain untapped; over two-thirds still flow unused to the oceans.

Because of lack of rainfall, about two-thirds of the Earth's land would require irrigation for successful crop production. Yet only twelve percent of all land now being farmed, somewhat over 200 million hectares, is under irrigation. The mounting costs and energy requirements of new irrigation schemes, not the availability of fresh water, have been the prohibiting factors. There is no question in my mind that as the world food crunch intensifies, vast new acreage under irrigation will take the highest priority in national planning and development.

An impressive example of a vast scheme to better utilize fresh water resources is being planned in the USSR. The Soviets hope to divert one-tenth of the northward flowing River Ob - - about 25 cubic km. per year of water - - southward to Kazakhstan. Later they plan even more. This giant source of diverted water will be used to irrigate the new breadbasket of the Soviet Union.

Enormous investments, however, are not necessarily required to extend the limits of water for agriculture. Estimates have less than 50% of all water now deployed in irrigation systems being used efficiently. Mismanagement and poor technology often furnish crops with much more water than they need for successful growth. Techniques to correct this are well known and often require only modest capital outlay.

Figure 8, showing the number of irrigated hectares as well as percentage of cultivated land irrigated in eight nations, offers a

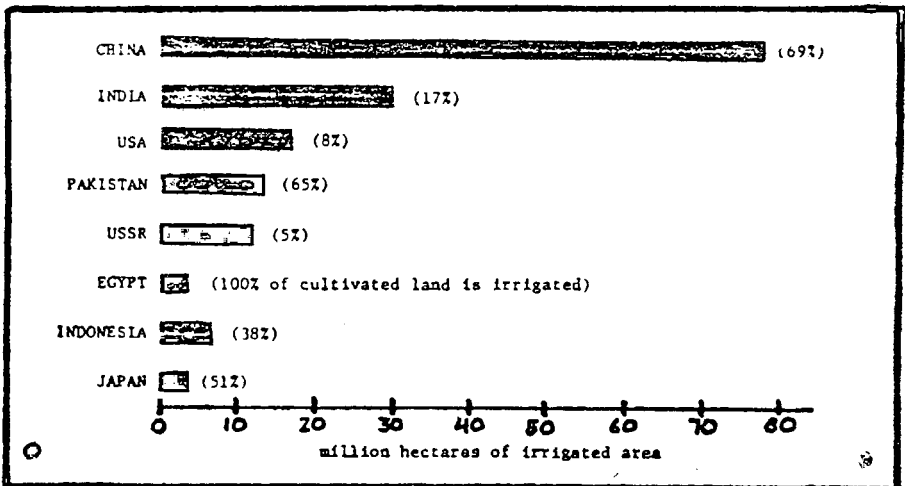


Figure 8.

Source: FAO, 1971

glimpse of the possibilities. What it does not show, however, is the relative efficiency in managing irrigation. China, with only 11% of its total land area able to be cultivated, manages to meet almost all food needs of its 900 million people through highly efficient irrigation over about two-thirds the farmed area. Egypt, on the other hand less successful in feeding its people without large food imports, irrigates 100% of its cultivated land. In Egypt water is free to anyone with power to lift it to the fields; with animal power plentiful, overwater of crops is widespread. Besides water waste, poor drainage and subsequent soil salinization have steadily decreased fertility in what was once the richest food producing area in the world.

Now for some brief comments about the prospects for furnishing energy to stoke what many regard as the insatiable needs of our future world food system. As figure 9 reveals, modern high-production agriculture as practiced in the United States and proposed by many as a model for the world requires large expenditures of energy. At present almost all human energy in the system is derived from fossil fuels, mainly petroleum. Hence farm energy costs are expected to rise severely as oil disappears as a plentiful resource. While it is probable that other energy sources (biomass-alcohol, gasified coal, solar, wind, even mini-nuclear power units) will make their way to

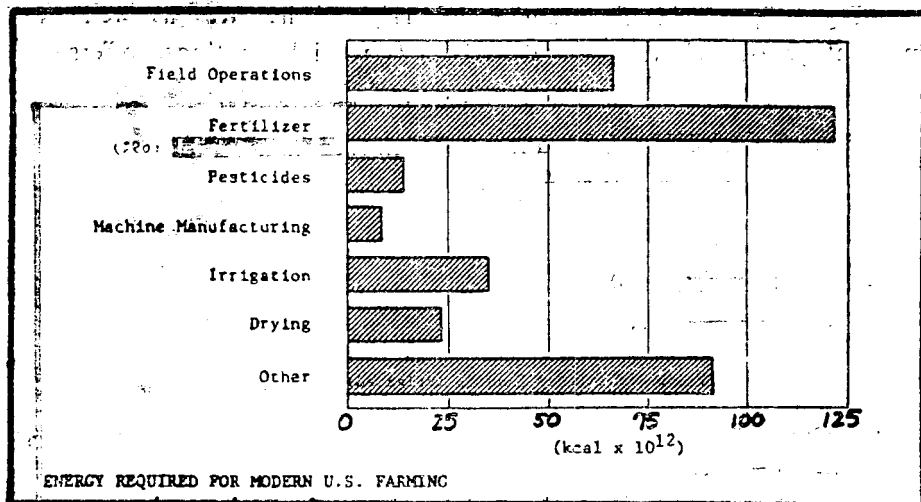


Figure 9. Source: American Association of Agricultural Engineers, 1975

replace gasoline and diesel oil for driving machines on farms, there appears a more serious problem when it comes to alternatives for

today's petro-based fertilizers and pesticides. After all, massive fertilizer application is generally considered the key to future dramatic improvements in food productivity in the Third World. Fertilizer consumption has doubled every ten years since World War II. It is held mainly responsible for an almost 40% gain in major crop production in the United States in the past three decades.

It seem to us that highly mechanized farming will always have a place in the future of man, despite the often-advanced argument for labour intensive and "appropriate" technology in those counties now teeming with the under-employed and underfed. Motor driven devices such as pumps, conveyors, dryers, coolers, lighting generators, etc. are so essential in today's farm enterprise that their replacement by human or animal labor seems inconceivable. As suggested, the fuel for these devices will surely materialize. Motor driven vehicles and tilling units will probably also survive, although some real competition may come if animals stage a comeback as an important limited farm power source even in developed countries.

Alternatives for high energy fertilizers and pesticides, however, are another matter. There has been increasing attention lately on the virtues of pre-World War II farm technology, when much food was grown without need for giant application of inorganic fertilizer and massive doses of insecticide. Manure was applied, fields were rotated, mulches were developed, crops were intermixed; all practices which we now call "organic" (or biological) farming, a term which still provokes derision among agri-bureaucrats. But arguments for a large scale return to organic type farming cannot be dismissed off-hand. The water, soil and energy conservation it offers are important imperatives. But the most interesting prospect of all is that in some recent comparative tests, well-run organic farms have proven equal to equivalent crop monoculture in average year-to-year productivity. One important reason is the defense against bad weather inherent in mixed crop, organic soil type farming.

New technology to support low energy, or energy-efficient farming is also on its way, at a cost. Crop refuse, animal wastes, and even human garbage can be turned back into the production system through fuel or feed producing fermentation units located right on the farm. Soil additive bacteria, organic foliar sprays, and rich fertilizers made from seaweed and municipal sludge are now on the market competing with chemical fertilizers. Research and develop-

ment in food crop genetics to add nitrogen fixing capabilities is widely under way. Biological controls, where selected inoffensive insects or diseases prey on economically important crop pests, are displacing and are potential replacements for costly, environmentally dangerous insecticides.

Climate Invulnerable Food Production

In briefly surveying the various models or scenarios that project future world food production, we were struck by an interesting omission. All hypothesized that tomorrow's food will be produced pretty much as it is today: that is by conventional soil, sun and rain farming, augmented by some harvest from the sea. True, most did at least mention in passing the notion of growing food from biomass, or synthesizing food in factories. But the general impression was that these developments, even though they are proving technically feasible, stand small chance of competing with traditional farming, hence will contribute insignificantly to tomorrow's food supply.

If we are to accept the prevailing view that we will soon reach the limits of land, water and perhaps even energy for world food production, then we must be obliged, also, to take the position that other ways of producing food are bound to eventually become more attractive and cost-effective. Since it is implied these alternatives will be somewhat if not completely independent of natural environment, it makes sense to call them techniques for "climate invulnerable food production."

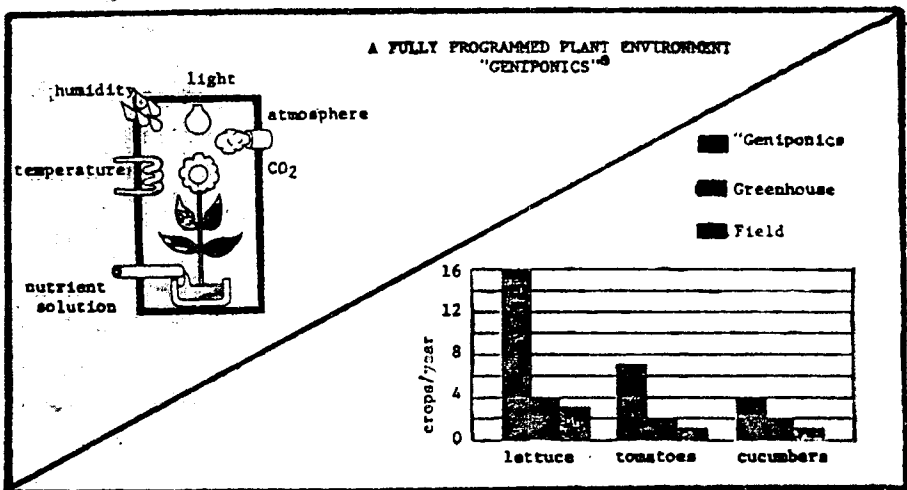


Figure 10.

Source: General Electric Company, 1978

Solar greenhouses, of course, are a well proven way to produce food free of rain and soil, although still dependent on a relatively sunny climate for efficiency. However, as Figure 10 suggests, greenhouses are evolving towards completely controlled environment agriculture, where even sunlight can be eliminated as a variable. Programmed use of high intensity lighting, along with controlled microclimate, nutrients and water, yields three or four times the productivity possible in equivalent conventional greenhouse culture, says G.E. The approach appears to have great promise in cold locations where energy is in food supply and there is a lively market for fresh produce.

Controlled environment food growing which still takes advantage of free solar energy has also advanced significantly in recent years. Better greenhouse thermal design and new techniques in hydroponic (soil-less) culture are extending the range of foodcrops successfully grown and marketed. While a sophisticated installation is high in capital costs - anywhere from \$ 50,000 to \$ 200,000 per hectare according to its complexity . . it is expected that engineering improvements, economies of scale, conservation of water and nutrients, and alternative demands on the land will make its wide spread use highly probable during the next century. Controlled environment greenhouses, with water requirements as low as 1/10th of fieldcrops, can be located on relatively inexpensive arid land or desert where sunshine is maximum.

Closed environment fish culture is another long established way to produce food essentially independent of climate. In 1975 an estimated 6 million metric tons of fish were cultured worldwide, with most growing in small ponds cultivated over the centuries, mainly in Eastern Asia. Recent progress in closed-cycle aquaculture . . where fish are raised in high-density, highly mechanized growing enclosures and in polyculture—where satellite fish and food crops are grown in the system—suggest we may be on the threshold of a major production breakthrough. But these technologies demand major capital investment. Large scale industry backing is clearly required if this source of food is to attain the 50 million metric tons per annum level by the year 2000 estimated by the National Research Council in its 1978 report.

Climate independent, highly mechanized aquaculture in the U.S. is as yet confined to relatively small scale production of luxury species such as oysters, crayfish and trout. A good example of things to come, however, is the shrimp growing venture developed by Professor Carl Hodges and his group at the University of Sonora and the University of Arizona. Their pilot plant at Puerto Penasco on the Gulf of California in Mexico's Sonora state is an exciting venture with high prospect of economic success. At present, in closely controlled shrimp "feedlots," yields are approaching 3500 kgs. (7700 lbs.) of whole animal per hectare of surface water per year. Initial marketing of the product furnished the exciting news that it returns a higher profit per hectare than any other cultivated foodstuff. With Coca Cola as the project's sponsoring firm, its expansion into a major source for prime frozen shrimp is clearly in the cards.

Large scale bio-synthesis, or the conversion of organic bulk material into food by bacteria or enzymes, is another emerging technology with great promise for the future. Several years ago when petroleum seemed abundant and cheap, a number of big (100,000 metric tons/year) ventures to grow single cell protein on this substrate were planned. Most of these schemes were abandoned when oil prices went up. Today the main hope for producing a significant amount of the world's protein by this method lies in the use of carbohydrate or cellulosic (biomass) materials as the carbon sources feeding the proteinaceous microorganisms. While the costly hydrocarbons are a richer and more efficient substrate, their fermentation requires more stirred-in oxygen than carbohydrate materials hence significantly more energy input.

Having a major source of future food protein through bio-synthesis very much depends on efficient collection of normally unutilized or cheap field and crop wastes as substrate material. The quantities available today worldwide are impressive: there are 58 million metric tons of wheat chaff, 30 million metric tons of corncob material, 83 million metric tons of sugar bagasse, 9 million metric tons of molasses and vast quantities of unused waste from the big food processing industries, such as starchwater and peelings from potatoes, organic solids in corn and soy waste streams, and trim and peelings from fruit and vegetable canneries.

A word should be said at this point about the prospects for cultivating forests as a substrate for bio-synthetic food production. During two world wars large factories converted wood by hydrolysis into edible sugars which in turn fed yeast to produce protein-rich food and animal feed. Some natural forests of the tropics have been found to contain biomass of over 1,700 metric tons per hectare, with growth rates exceeding 50 metric tons per hectare per year. It has been demonstrated that wisely managed forest areas will produce two to three times more biomass than unmanaged land produces. For example, one species which grows widely in the tropics, *Leucaena*, can be cultivated to yield, through periodic harvest of its leaves, 90 metric tons per hectare per year of palatable green feed, equivalent to 23 metric tons of hay containing 26% protein. Without question, agro-forestry has an important future in the developing world, particularly in the hot, humid tropics where rain and sun are ideal for abundant growth.

The promise inherent in bio-synthesis technology is obvious in its production efficiency. A 453 kg. (1000 lb.) steer grows less than 2 kg (4 lb.) of protein a day, and 453 kg. of soybeans, cultivated well will yield over 40 kg. (92 lb.) of protein every 24 hours. But 453 kg. of microorganisms, given enough raw materials to grow on, will turn out over 45,000 kg. (100,000 lbs.) of protein in a single day.

The most dramatic alternative to conventional agriculture is to produce food by chemical synthesis on a giant scale in factories.

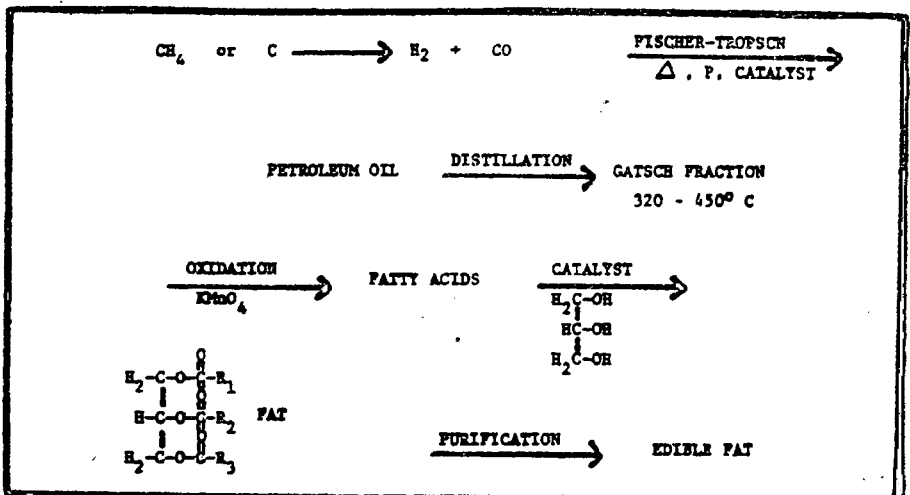


Figure 11.

Source: I. G. Farben Company, 1943.

The chemical process shown in Figure 11 proves the notion is not a wild one. It is the way Germany manufactured 100 million kilograms of edible fat during World War II, starting from coal; a vivid example of how, when conventional food is scarce, a synthetic food or nutrient can be made by a chemical or biochemical process from nonliving raw material.

All of the basic nutrients of food—protein, fats, carbohydrates, vitamins—can be produced by synthesis, and balanced, attractive, edible products fabricated from these “building blocks” by modern food engineering. Synthetic vitamin production is already a worldwide industry. Some of the important micronutrients in protein, the amino acids, are also being made commercially by both synthesis and fermentation. Pilot methods to build whole proteins from these constituent have been developed but are not as yet practical in the factory. Techniques for synthesizing edible sugar, the basic food carbohydrate, also have been perfected and its economic manufacture is predicted (if desired) by 1985. Meanwhile a number of high energy substitutes for sugar have been synthesized and only await FDA type approval before a predicted widespread use.

With significant synthetic food production already commercially underway, many believe the present low-volume production of essentially high-unit-value items will expand naturally to have some impact on the world food supply by the year 2000. However, if a conscious world effort in research and development were to be mounted to achieve economic production technology and necessary social acceptance, food synthesis could furnish an important part of the world food budget in the century ahead.

More Livestock as a Food Panacea ?

The notion of climate-invulnerable food production brings up the thought that farm animals, especially ruminant livestock, probably face a strong revival in food systems of the future. This is because they serve as a food source when crops fail and as a way to store grain during harvest gluts. Of course, this view is directly counter to the often stated prediction that livestock will disappear because they compete inefficiently for grain that could be fed directly in humans.

Figure 12 shows the central role that ruminants play in an integrated, energy-conserving food producing system. Besides being a capital reserve in lean years, the animals furnish meat, milk, fertilizer and other useful byproducts. With their multicompart ment stomachs, ruminants are able to prosper on marginal vegetation in areas too dry or unfit for cultivation. Some ruminants such as zebu cattle, goats, reindeer and camel have adapted to difficult climatic

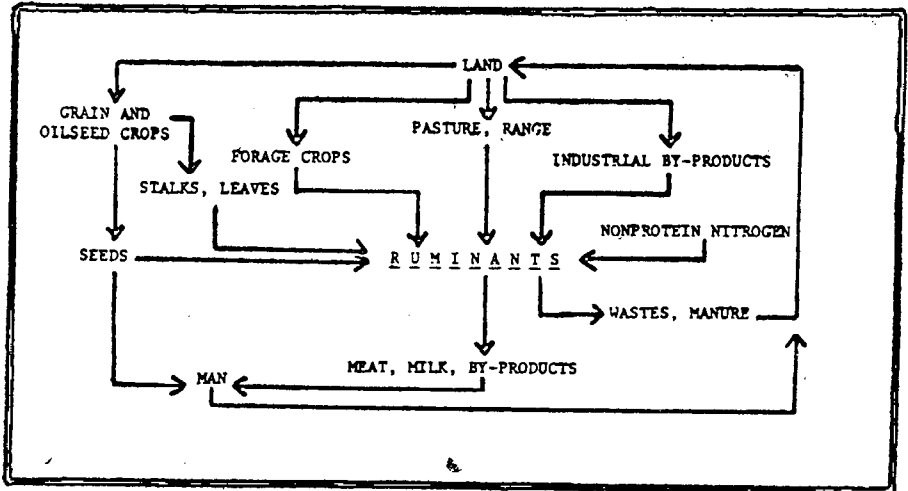


Figure 12.

Source: Agricultural Council for Science and Technology, 1975

regimes and can survive where other livestock fail. At present about twelve percent of the world's population relies almost entirely on ruminants for their livelihood and food.

Should world agriculture, because of the escalating costs of petroleum-derived fertilizer and pest controls, be forced towards more conservative organic practices, livestock/crop rotation will surely re-emerge as a key element in the farm production system. The combination contributes to soil fertility and erosion control, helps check soil-borne disease of both crops and animals and, when rangeland is properly managed, grazing can be a stimulus to growth and productivity of herbage. Further, the way ruminants are fed in the farm scheme can be usefully flexible. Avoiding costly feed grains, which today furnish about 30% of livestock diet in the developed countries, ruminants can thrive on a wide range of agri-industrial wastes and byproducts which normally go unused in many parts of the world.

A Post-Harvest Bonanza

In our studies of food losses in crop shortfalls, due directly or indirectly unfavorable weather, we became aware of a startling fact. It appears that in many parts of the world the amount of food lost in various ways after harvest is often of equal and greater magnitude than most shortfalls. If these post-harvest losses could be reduced or eliminated it would furnish an unexpected bonanza to many countries now deficient in food.

Figure 13, which tabulates losses of important food crops after harvest in various parts of the world, hints at the possibilities. In many countries, particularly those least developed and with the most

<u>Crop</u>	<u>Country</u>	<u>Weight Loss</u> (%)	<u>Storage</u> (# of months)
Legumes	Upper Volta	50 - 100	12
	Tanzania	50	12
	Ghana	9.3	12
Maize	Zambia	90 - 100	12
	Benin	30 - 50	5
	USA	0.5	12
Rice	Malaysia	17	8 - 9
	Japan	5	12
	United Arab Republic	0.5	12
Sorghum (unthreshed)	Nigeria	2 - 62	14
	USA	3.4	12
Wheat	Nigeria	34	24
	USA	3.0	12
	India	8.3	12

POST-HARVEST LOSSES BY WEIGHT

Figure 13.

Source: FAO, 1970

troublesome foodstorage climates, losses of harvested food many run as high as 50 to 60% by weight. Lack of proper storage facilities, fungi, pests and poor handling all combine to create the problem.

To get some sense of the monumental amount of food lost in this manner consider the conservative figure of 25% post-harvest the attrition in cereal and pulse crops in semi-arid Africa. In 1971, a typical year, this amounted to about 7 million metric tons. At \$7/hundredweight, this approximates a \$ 1 bil ion loss, year-after-year, on two important food crops in one poor region of the world. Since one ton of cereal will feed six people for a year, the food saved could literally sustain millions of people.

A successful worldwide drive to minimize post-harvest food losses would eliminate dependency on huge grain imports and improve local food supplies dramatically in most Third World countries. Much of the technology required for difficult hot and humid location is well known, since effective storage systems have been well developed for tropical export commodities. While the cost of applying this technology on a broad scale would be high, the investment should amortize rapidly. Furthermore, the smaller scale, villagelevel type of foodcrop storage required so desperately in rural Africa and Asia need not be sophisticated and high-priced. In Benin, Nigeria, for example, effective low-cost storage facilities were designed by the nation's agricultural extension service assisted by volunteer workers and aid agencies. Built with inexpensive local materials and by local labor, the new food storage units have almost eliminated rodent foraging in that area.

Extending the Food System

Proper food storage after harvest is an essential first step in evolving towards the modern food system which is diagrammed in

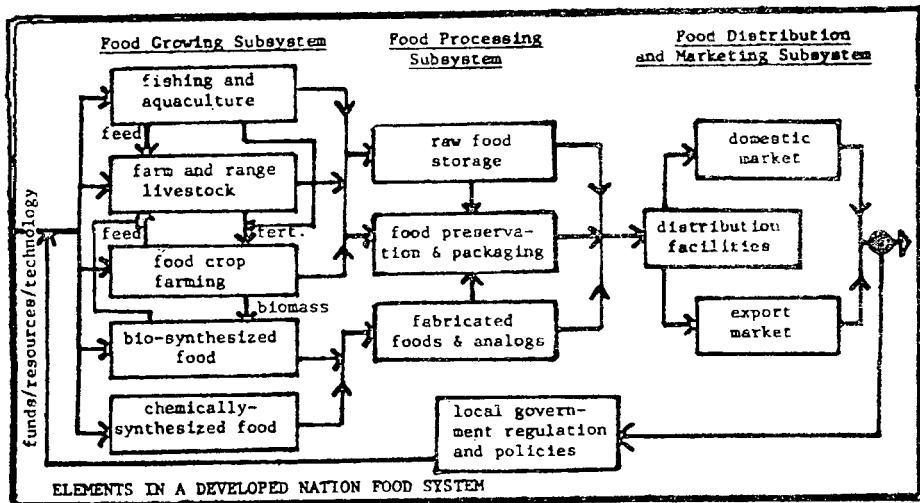


Figure 14.

Source: L. E. Slater, 1978

Figure 14, typical of the food industries of North America and Western Europe. Most developing countries, particularly those in tropics, have relatively primitive food systems, with most activities at the agrarian level. Facilities to store, preserve, package, and distribute food to local and urban consumers, and the infrastructure required

to support these functions, are largely missing. Hence native food supplies come in seasonal bursts, depend on marginal and fragile distribution paths, and are especially vulnerable to losses due to bad weather and climate as well as to pests and predators after crops leave the field.

Food processing—its preparation and packaging in preserved form—not only adds value and convenience to the product but extends its life for several years of safe storage. Furthermore, investment in processing technology, which for efficiency should be near the raw food source, fosters the rural development so desperately needed in most Third World nations. Processing plants create jobs, require roads and utilities development and bring many usually forgotten people into the nation's cash economy. Small farmers, assured of income from processing plants for their crops, are finally able to secure credit for the agricultural inputs needed to maximize production and combat the impact of a difficult climate or environment. The process of industrializing food also opens the way to use of the abundant biomass and farm wastes of the tropics in schemes for making fuels and feeds in centrally located fermenters.

In a way, those Third World nations with only primitive agrarian systems are in an enviable position. Should their leaders decide to give food production and distribution a high priority in national planning, they face a fine range of choices to achieve what amounts to an optimum system. Through the modern techniques of information systems, modelling and systems analysis they can determine what can best be grown, processed and distributed under local climate, agronomic, environmental and socio-economic conditions. For example, present use of best lands and resources to sustain export crops can be traded-off against the benefits from growing more food for internal consumption. The latest developments in food technology, such as biomass to protein conversion, and aseptic containerizing to avoid costly refrigeration, can be evaluated. These efforts to optimize a nation's food producing and distributing capabilities, if widespread, could add greatly to net world food productivity and reduce malnutrition in the forthcoming century.

What About Population ?

Finally we must come to the most predicted, yet most elusive element in our future world food equation: Population. It is

difficult for us to take a position on the population question or to consider it as a manageable dynamic variable in our Climate, Food and Population system. Its laws are simply not that well known. Rather, we are inclined to accept the widely held prediction that world population will essentially double by the year 2030 or 2040 and let it go at that.

On the other hand, responding to the analytical bent of the systems approach, it is possible to put forth some modest conjecture on how increasing success in food production and distribution worldwide may interact with population dynamics. It seems reasonable to us, for example, that family size in most developing societies must integrate closely with the availability of food and the quality of nutrition. This suggests a few assumptions for a possibly more hopeful outlook than a Malthusian view of population and its limits.

Can we not assume that when infant and child mortality is high because of malnutrition and the diseases which follow, the incentive is to produce more children? Conversely, when children, well fed, can be counted on to survive, the incentive to have large families surely must decrease.

We can also readily assume that improving family purchasing power in the poor usually leads to fuller stomachs, provided the needed food is available. Might not this also further result in a level of security and awareness in the family where decisions on its size can be consciously made and implemented?

A final assumption is that better fed individuals within a developing society will add energy to the development process. This in turn will foster the economic progress amongst the poor which is suggested as a helpful condition for facilitating birth control.

There is, of course, great circularity in the logic supporting these few assumptions. This sort of analysis is one of the beguiling pitfalls as well as hopeful benefits of the systems approach. What it suggests, however, is that there may be important synergistic possibilities in the food/population interaction: that improved food supplies may in fact lead, ultimately, to lessening demand for food and to a possible steady-state in world food needs perhaps by the year 2050.

The Real World Always Intrudes.

To conclude this somewhat optimistic inventory of new perceptions which can possibly shape a well fed world by the year 2040, we must not avoid some comments on the most critical element in our climate/food/population interaction: namely the dynamic force in our system diagram that is labelled *Governance*. Another name for this force might be the Real World.

We are well aware that all of the arguments we have made for ways to reduce the hazards in our future are simply whistling in the wind if no one takes them seriously. Even the finest shopping list of promising technology and policies for its application has small relevance if chances for its use are minimal. In final analysis, it will be the governments of nations, subject to major world economic forces as well as tugs and pulls of ideologies and power, that will decide. Improvements in the values, arts, and capabilities of governance over the next several decades are unquestionably the key to realistic hopeful scenarios in all aspects of the future world condition.

The driving force for governments to assume the frame of mind and movement towards a new concept of growth based on human goals, integrative thought and selective, imaginative use of technology and supporting policies can only come from an enlightened body politic. At this juncture in history our most valuable effort towards this end probably lies in the interchange resulting in this and similar conferences and in the widespread public airing of our findings. We have no clues, however, on how to carry out the massive worldwide unbrainwashing that will prepare the mind and spirit of men and women of every region of the Earth for the large human commitment that will alone bring peace, prosperity and justice to us all.

Some Final Thoughts

How are we to overcome the ultimate paradox of our time? Never before in history has mankind the technological power to feed, clothe, educate and provide health care abundantly for all. Yet we continue to give the effort second place in our goals. It is easier to marshal support for guns and rockets for military security. Larger

sums are spent for mind-modifiers in alcohol and drugs. How far short of the human potential we fall?

In the perspective of deep space what happens here on Earth may be of small consequence. Yet I sometimes imagine the great thrill I would feel to stand on the Moon's surface and look back from that harsh lunar landscape to the softness of the luminous, hospitable Earth. From the vantage point I could view our planet in its oneness. There I could fully understand that not just a few nations but all mankind shares in the fantastic achievement of a lunar landing or flights to Mars, Jupiter, Saturn and beyond. After all, science, engineering and management skills, the common heritage of mankind, are what make possible such feats. All nations and races have contributed to the unbroken threads of knowledge that are man's highest cultural treasures.

From space, my astronaut and cosmonaut friends tell me, the Earth appears as a rare and beautiful place in the vastness of the universe. From this perspective it seems unimaginable to me that the people of the Earth will not turn their vast new skills and power, towards making a better world for all mankind. If we choose to pay the price it is clearly within our capabilities to construct world systems that achieve sound harmony between man and nature on this magnificent and possibly unique planet.

Tax-Policy as an Instrument for Economic Growth

with special reference to Pakistan

A. S. Khalid*

INTRODUCTION

Taxation, is of paramount importance in developing countries because, generally speaking, monetary and credit policies are relatively ineffective due to small area of banking and credit use. Taxes can aid in development in three ways :

1. By raising revenue, or, more fundamentally, by securing command over real economic resources for the public investment.¹ This is particularly important for the development of the infrastructure which is essential for the promotion of balanced growth.

2. By promoting stability in the economy, i.e. by counteracting inflationary pressures due to the development process. In developing countries this is particularly important in respect of long term pressures rather than of short-term cyclical movements.

3. By encouraging enterprise to develop. This can operate on two levels :

- (a) on the primitive subsistence economy level by helping to break down isolation by bringing new services and investments to the villages and teaching them the importance of the things which their tax contributions can provide ;
- (b) on the higher level by promoting enterprise particularly in manufactures, i.e. by providing good conditions in which enterprise (whether indigenous or from overseas) can function, and stimulating enterprise by reducing the risks attendant upon it.

There are of course other methods of financing development, in particular, loans from home and overseas, but although these may be useful as a supplement, the main burden of the finance of development must fall on the tax system.

*Department of Economics, Govt. College, Lahore.

The first element of choice is to select taxes which will bring in good revenue. To achieve this it is necessary to have (a) well drafted tax laws which are unambiguous and really appropriate to the circumstances of the particular economy ; (b) taxes that are as simple as possible (income taxes can never be very simple). The tax law must not be riddled with concessions and rebates which sacrifice revenue, such as protective duties which guarantee monopoly power for indigenous producers or too generous tax holidays ; (c) efficient procedure for assessment collection at rates which are enforceable. This implies an adequate body of tax officers well enough paid to minimise temptation for cheating, modern methods of identification and record of tax payers, particularly in the higher range of surtax.

It is only when taxes are considered to be both inherently fair and assessed and collected without favour that full tax-payers co-operation and compliance can be attained.

The second element of choice is to choose taxes which will promote stability or steady growth in the economy.

In this article an attempt shall be made to determine the scope and limitations of tax policy in the promotion of economic development and welfare of a developing country.

I. Taxation, Saving and Investment

Development economists have usually regarded the level and structure of taxation as an extremely important variable in the determination of domestic saving, and fiscal policy has been regarded as a means of mobilizing savings to promote growth.² In this section we shall review the attempts to answer two interrelated empirical question with respect to developing countries : (a) What is the relationship between an increase in taxes in a country and the overall level of saving ? (b) What are the relative values of the marginal propensities to save by governments and in the private sector ?

Most studies of the effects of taxation on saving show that government saving increases with increased revenue. However, several studies have questioned that relationship. In Pakistan though government revenue from taxes, increased during the period 1972-79, Public saving were negative in the first 3 years, and show declining trend in the last two years. The following table shows the revenue and Public Savings during the period.

	(Rs. Millions)						
	1972-3	1973-4	1974-5	1975-6	1976-7	1977-8	1978-9
Total Tax Revenue	5,839	8,537	10,024	13,915	16,112	19,292	22,990
Public Saving	(-314)	(-131)	(-639)	1,052	3,670	3,185	2,075
Annual Change in Public Saving over the previous year	-0.3	-0.1	-0.6	+0.8	+2,489	-13.8	-34.5

Source : Pakistan Basic Facts 1978-79.

Budgets in brief for the year 1975-6 to 78-9.

State Bank of Pakistan : Annual Report 1979-80 p. 10.

Stanley Please,³ for example, suggested that the marginal propensity to consume by governments out of increased revenues is extremely high and that in several cases increased taxation may have led to reduced national saving. In Pakistan the share of Public Saving in the total national Savings has shown erratic trends. These were negative during 1972-75. Its share in national savings during 1975-79 was 7.86%, 21.57%, 13.51%, & 12.52% respectively. Support for this position is found in the work of Landau.⁴ He employed the following equations:

$$S/Y_g = a_0 + a_1 (T/Y_g) \quad (1)$$

$$S_g/Y_g = b_0 + b_1 (T/Y_g) \quad (2)$$

$$S_g/Y_g = c_0 + c_1 (T/Y_g) + c_2 (Y/Pop) \quad (3)$$

In all equations the t-values show a reasonable significance of the T/Y variable, but serial correlation and low Rs 2 limit the reliability of the results. Nonetheless, Landau's findings are interesting. First, in three of the four cases in which the aggregate saving ratio, S/Y, is the dependent variable, an increase in the tax rate is found to have a negative effect. This, coupled with the positive coefficients in government saving, tends to support the belief that the increase in government saving is more than offset by a decrease in the rate of private saving (a strong "Please Effect"). Landau's cross-sectional analysis of 19 Latin American countries showed only a slight positive relationship between the tax ratio, T/Y, and the average saving ratio, S/Y. Landau⁵ concludes, "... the evidence presented here seems to support the concern of those who question the feasibility of raising the aggregate saving proportion of a nation by means of higher taxes.

In Pakistan Gross domestic Saving as percent of GDP (at current factor cost) fell from 10.08% in 1972/73 to 4.91% in 1974/5. It registered little improvement during 1975-8, but again fell to 4.49% in 1978-79. Though the tax revenues of the Govt. increased absolutely over this period. (S.B.P. annual report 1978-79.)

Krishnamurty⁶ employed a cross sectional analysis of 35 developing countries and time series analysis for 12 to test the relationship between the marginal tax rate and both the marginal propensity to save and the marginal propensity to consume. Although his statistical tests are not impressive, he suggests that the marginal tax rate had no effect on the aggregate marginal propensity to save and that an increase in the marginal tax rate reduced the marginal propensity to consume by households.

Bhatia⁷ studied the effect of taxes on levels of private and public consumption. On the basis of a cross-sectional study of 20 African countries he found that for every one percent increase in the tax/GDP ratio, private consumption decreased by .21 percent of GDP and public consumption increased by .05 percent of GDP. The net result is an increase in the mobilization of investment funds. Morss⁸ also found little evidence of the "Please Effect" in his cross-sectional study of 46 developing countries for 1965-1967. He regressed the average rates of national and private consumption against per capita income and the ratio of total taxes to national income. His equations are :

$$C/Y^g = d_0 + d_1(Y/Pop) + d_2(T/Y^g) \dots \dots \dots (4)$$

$$C^g/Y^g = c_0 + c_1(Y^g/M) + c_2(T/Y^g) \dots \dots \dots (5)$$

He found that the values of the coefficients on the tax/GNP ratios were both significant and positive ($d_2 = .73$ in the national consumption equation and $e = 1.5$ in the private consumption equation). Morss concluded that these results precluded a "Please Effect" however, the R^2 s for equations (4) and (5) were only .1, and .4, respectively.

Singh's⁹ results are similar to those of Krishnamurty, Bhatia and Morss. He included the tax/GNP ratio in a variety of forms to test its effect on the average propensity to save. The coefficient on T/GNP in five different regression equations varied between 0.10 and 0.4; in all cases it was significant and positive. Singh's findings and interpretations may be summarized as follows :

First, a rise in the tax rate as a percentage of GNP increases the national savings rate, but the increase in the national savings rate is higher for developed countries than for developing countries

Nevertheless, to increase the savings rate in developing countries by one percent, the tax rate would have to be raised by about 6 percent of national income.

Singh also finds a high degree of substitutability between private savings and governmental savings, so that an additional dollar of government saving implies a reduction of 57% in private savings. Another somewhat paradoxical finding, which was also noted by Houthakkar¹⁰ is a positive relationship between the tax rate and the private savings rate so that an increase in the tax rate actually increased the private savings rate. A third major finding is that of a low propensity to save on the part of governments.

The analysis of the effects of taxation on saving raises policy issues which cannot be evaluated on the basis of statistical aggregates usually employed. We need more functional concepts of current and capital expenditure by governments. Certain types of expenditures for education are recorded as current, whereas they might well be regarded as an investment in human capital. Government expenditures on a presidential palace or construction outlays by the minister of defence may be included in capital outlay in the data on government investment while they might better be classed as current expenditures. The diversion of private saving from land or inventory speculation or from investment in foreign securities to the public treasury is not an undesirable development. On the other hand, taxation that reduces the incentive and ability of private firms to reinvest their earnings in productive undertakings might be regarded as an undesirable means of raising governmental revenue regardless of what the government does with its revenue.

II. Taxation and Economic Incentives

Tax incentives are also employed to stimulate economic activity either overall or selective. Tax means have been widely adapted particularly for industrial expansion in many of the less developed countries. The aim is to encourage private sector to save and work in projects considered as an economic necessity, or in comparatively less developed regions. Besides tax means are also used to compel output, and to discourage speculative hoarding of goods.

The most widely offered tax incentives take the form of exemption from custom duties, excises and taxes on income. While the cost of project is reduced through the exemption from custom duties,

excises and taxes on income, the tax allowances based on accelerated depreciation, reduce the investment risks by enabling the investors to recoup their capital in shorter period. The purpose of tax concessions is to influence investment decision in private sector but it is highly doubtful that the tax concessions can achieve this end to any respectable extent. In fact as Milton ¹¹ observes investment decision are influenced to a larger extent by other factors such as extent of market, availability of skilled labour general economic and political conditions and to a marginal extent on tax concession. The limited empirical studies conducted in Mexico, ¹² Puerto Rico and Pakistan ¹³ indicate that investment decisions were more influenced by the higher profit margin, resulting from a policy of high protective duties and availability of foreign exchange than by the tax exemption. Tax concession, if liberal or when extended to less essential industries result in much larger revenue loss for government than the benefits yielded in the upsurge of economic activity. Besides these may lead to distortion of resources, and create a new class of privileged people. In Pakistan, industry no doubt grew rapidly but as pointed out by Papanek, ¹⁴ tax incentives helped to swell the coffers of "robber barons" Further the incorporation of incentive provisions in Income Tax statutes, make them highly complex, thereby placing greater burden on the tax administration and increasing the scope of evasion. Kaldor ¹⁵ considers the prevailing concern with incentives, as misplaced, except in particular cases, such as concessions granted to foreigners which is likely to increase the inflow of capital from abroad. In Puerto Rico, Mexico and Phillipines tax relief devices attracted foreign capital but failed to bring about domestic capital formation ¹⁶ Opposite has been the experience in Pakistan in 60's. Where tax incentives played a "very substantial role in stimulating Saving and Capital formation in the industrial corporate sector" ¹⁷ When the Government in a bid to bring about greater Social Justice, nationalized Banks, insurance cos and other industrial enterprises and introduced progressive reforms, it resulted in a fall in private investment. Its share in total investment fell from 57% in 1971-72 to 24% in 1976-77. There was flight of capital from the country and use of saving for purchase of real estates. The later government in order to infuse confidence among the investors denationalized some of the industrial enterprises and reintroduced fiscal incentives.

Fiscal incentives have also have been provided in Pakistan to encourage exports. In view of the simultaneous existence, export bonous scheme, export performance licensing and special credit facilities, it is difficult to find out the exact impact of tax incentives on export performance.¹⁸

III. Income Taxes

Public authorities in developing countries must raise revenue large enough to leave them with some surplus. While raising revenue they must carefully reduce inequality of incomes. In this context income tax in its capacity as a revenue raiser and income equaliser becomes a powerful fiscal instrument. It is one of the very few taxes which raise revenue and at the same time reduce inequality of incomes. It is natural that developing countries with their twin aim of capital accumulation and reduction of inequalities are tempted to make use of income tax.

As a means of development finance, income tax has not been used in the past. For example, during much of its history, the federal Government in the U.S.A. relied principally on tariffs and excises to provide its revenues. Income taxes were not introduced until shortly before the First World War.¹⁹ Even till 1950 only a limited use was being made of the income tax in developing countries. But as pointed out by Hicks, "it is along this path that the ultimate solution of their revenue problems must be found."²⁰ The problems posed by income tax in development finance though new are being well explored.

Income Tax and Capital Accumulation

Income tax influences capital formation by its effects on people's (a) incentive to save and (b) incentive to invest.

(a) Income tax differentiates against saving and as such lowers people's incentive to save. Individuals are taxed twice on what they save and only once on what they spend. "No income tax is really just," wrote J.S. Mill a century ago "from which savings are not exempted."²¹ Mill's argument have been supported by a number of distinguished economists, such as Alfred Marshall, A.C. Pigou, Irving Fisher and Luigi Einaudi, it has been opposed by Edwin Cannan, Josiah Stamp, Deviti de Marco and C.W. Guillebaud. Much of the controversy regarding the double taxation of savings has been fruitless and it is now admitted that Mill's manner of stating the proposition was not a happy one. His statement must be taken to mean

that an income tax affects an individual's choice between spending and saving. It lowers the return obtainable from saving and makes spending more alluring. Recent statistics on Britain show that the wealthy classes in Britain have ceased to have and dissave on a considerable scale. This is not the result of the form in which taxation is imposed. More particularly is this due to the peculiar effects of income taxation towards discouraging savings and encouraging consumption²²

The tendency towards dis-saving is enhanced when super taxes are added. "The incentive to dis-savings from the taxation of income is directly proportional to the marginal rate of tax on income."²³

Nothing short of an expenditure tax will enable us to remove completely the adverse effects of income tax on people's incentive to save. Writers like Kaldor, and Clark have been insisting that income tax should cease to be a tax on income and should become a tax on spending. The case of an expenditure tax is, however in an exploratory stage. Kaldor, who in his recent book has worked out fully the theory and the practice of such a tax, admits that an expenditure tax would undoubtedly be a more complicated tax to administer than the present type of income tax. "It would be impossible to think of replacing the present system with an expenditure tax at one stroke. There is well over a hundred years accumulated experience concerning the income tax.²⁴ It is, therefore, extremely doubtful whether underdeveloped countries can afford to experiment with an expenditure tax.

Short of an expenditure tax people's incentive to save will be less impaired if the rates of income tax are substantially lowered. "The rate of taxation in Pakistan for individual persons is about the highest in the World.²⁵ The effects of such high taxation on saving could only be disastrous and only at a lower rate of taxes could we expect people to save more.

(b) Economists are agreed on the point that an income tax differentiates against risky investments. Under an income tax, we can notice a diversion of funds from less to more secure forms of investment. The existing Government policy of exempting income from government securities and saving certificate from taxation goes to intensify this tendency. Because of the artificial demand created for their securities by tax exemptions, government are able to obtain their funds at comparatively low rates of interest. This, however,

handicaps the raising of funds by private industrialists. "The tax exemption feature," writes Professor Groves, "Favours the most riskless investment and as such should be eliminated. The Principle of universality in the personal income tax should be respected with as few exceptions as possible."²⁶

The imposition of a profits tax in addition to normal rates on business incomes implies that higher income taxes are imposed on the profit element in income. The effect of such taxes can only be a reduction in the margin of profit and a reduction in business investment. The Economic Appraisal Committee examined the case and pointed out that price we pay for such taxes is too high. The Committee, however, did not recommend its abolition as they considered the concessions granted under tax large enough to make the tax non-existent.

The Committee's recommendation may be criticised from two points of view. First, we may ask how generous and how effective these concessions are. The concessions proposed include a promise for elaborate depreciation allowance and a promise for tax holiday for a period of five years ending in March, 1946. The depreciation allowances are fairly comprehensive but losses could not be carried forward for a period of more than six years. Nothing less than an indefinite carry forward of losses will have a noticeable influence on investment. As regards the tax holidays for a definite period, it can be said that this device provides little stimulus to the pioneering firms for whom it is intended; the firm is unlikely to make important taxable profits within the relevant period. In the last analysis, "It is very doubtful how far tax concessions in their own right really succeed in promoting development."²⁷ This conclusion is confirmed by the experience of Britain which has introduced a system of investment allowance recently. Such allowances are found to be a more effective type of tax concession for imparting a stimulus to investment than an equivalent reduction in the profits tax.

Secondly, we may ask if the tax is as good as non-existent and if no case could be made out for its introduction in future, why retain it at all? Indeed there is a good case for its abolition. The tax does constitute a discriminatory treatment of the owners of business as against other kinds of property owners.

The retention of business profit tax may however be favoured on one ground. The owners of business are likely to benefit at the

expense of rentiers as a result of government monetary and economic policies that have an expansionary bias. Such a tax can reduce their benefit under a tax system in which the capital gains are taxed in the same manner as ordinary income, when they accrue, the tax on profits will become unnecessary.²⁸

Income Tax and Inequality of Incomes

The greatest merit in favour of taxation is its effect on income distribution. Its progressive rates would make income more equal than it would have been otherwise. This merit is, however, more apparent than real. The exemption of capital gains from taxation has opened the door to tax avoidances on the widest scale since the facilities of the capital market offer almost unlimited scope for converting taxable income into tax exempt capital appreciation. "The whole procedure," wrote, Henry Simons in reviewing the American tax system in 1938, "involves a subtle kind of moral and political dishonesty. One senses here a grand scheme of deception whereby enormous surtaxes are voted in exchange for promises that they will not be made effective. Thus the politicians may point with pride to the rates, while quietly reminding their wealthy constituents of the loopholes."²⁹ These words are as applicable to present-day Britain and Pakistan as to pre-war America.

The same can be said of super taxes. Despite the extremely sharp increases in rates and several fold rise in the net national money income, the total revenue from surtaxes in Britain rose from £ 59 million in 1938 to £ 130 million in 1953. During the period not more than a few dozen tax payers in the whole country had a taxed net income of more than £ 6,000 whilst the scale of living of the 'Upper ten' had remained appreciably higher than this. All these show that taxed income has come to mean very little in the of the wealthy classes who have learnt how to do without it. No doubt the case with which confiscatory rates have been accepted and endured since the beginning of the last war greatly depended upon this process.³⁰ The situation cannot be different in Pakistan.

It has been contended that the check to individual savings arising from income taxation can be more than compensated by increasing public savings at Government levels. This brings in the question of raising more revenue from income taxes. More revenue cannot be obtained by raising the existing rates of taxes. The rates are already high enough to tax people's honesty. The

recent survey of the Indian tax system had led the experts to recommend tightening of tax administration and lowering of income tax rates.³¹ As a result of netting 2 lakh more assesseees and improved tax recovery, the contribution of Income and wealth tax in Pakistan jumped from Rs. 3620 Million in 1978-79 to Rs. 5000 Million in 1979-80, and is expected to be Rs. 6000 Million in 1980-81. This contribution upto 1974-75 ranged between Rs. 1120 and Rs. 1420 Million. Further improvement of tax administration shall enable personal Income Tax to play a major role in development financing.

The persistent inflation, in many economies has resulted in eroding the purchasing power of the people and there is a strong case for adopting "an inflation adjustment tax system." Adjustment based on changes in price indices can be made of exemptions or deductions, or by changing income bracket limits. Argentina makes use of the former, while Denmark and Sweden the method. In Pakistan exemption limit was raised from Rs. 9000/- to 12000/- in 1975-76. There is a growing demand for further enhancing it, in order to achieve equity and minimising the hardship resulting from the way in which inflation affects Tax payers.³²

IV. Corporate Taxes.

Taxing the income of the corporation is an integral part of income taxation. Countries are not uniform in their treatment of corporations in this respect. It is, however, agreed on all hands that corporations have no income of their own, the income rightfully belongs to the share-holders. Taxing of corporations' income before it is distributed and taxing of individuals-income without exemption would involve double taxation. Such double taxation can of course be avoided by exempting completely corporation income and taxing only personal income.³³ Difficulty arises because a part of the profits of the corporation remains undistributed. In order that this part of income may not-escape taxation altogether it is necessary to tax the income of the corporation. But care must be taken that this apparent necessity for at least one levy on undistributed earnings may not lead to the unfortunate duplication of corporate and personal levies. Pakistan avoids double taxation in so far as normal income taxes levied on company profits out of which dividends are paid are credited to the dividend recipient against his normal income tax liabilities. Thus the share-holders' return from corporate investment may be subject to super taxes twice however,

once as company profits and again as divided income since no tax credit is given to the share-holders for the super taxes paid by the company.

The corporation income tax is directed mainly towards undistributed profits and is an unsatisfactory to those whose principal interest is in the fairness of the tax system as to those whose principal concern is for incentives. The tax can only be impersonal in character and can make no differentiation among share-holders according to their income status. The small share-holders is subjected to the same treatment as the wealthy investors. Such inequity can be avoided if in place of corporate income tax a system of capital gains taxes is instituted. Such taxes would inevitably bring undistributed profits into the net and can be graduated according to the share of individual gains.

The economic implications of tax on undistributed profits have been widely examined. Historically, such taxes have not led to scarcity of funds for investment. They have probably, involved a less efficient allocation of the savings of the community.³⁴ A large part of these savings has not passed through the capital market and has not been subject to competitive bidding.

The above objections to corporation income tax hold good even if equal treatment is made of distributed and undistributed profits. Our present system of corporate income tax involves heavier taxation of distributed as against undistributed profits. It is natural that corporations would try to avoid taxation by leaving a large part of their profits undistributed. Why would corporations declare dividends beyond the consumption needs of their share holders, when to do so involves much heavier taxes than if management were to do the investing for the them? Our system is therefore well geared to encourage the growth of corporate savings. It has been claimed in defence of the system that this source of saving constitutes an imported means of business expansion and its favorable treatment goes to encourage risk capital. This favourable treatment is particularly important in the case of small and new companies for which capital market may be prohibitively expensive. About half of new share capital in recent years has come from reinvestment.

We are prepared to agree that corporate savings for business purposes serve a useful function and that they should not be discouraged by the tax system. However, it is difficult to support the claim that they warrant a preferred tax treatment. Except for new enterprises of small size, whose access to capital is known to be limited, corporate savings would seem to have no convincing claim to preference over savings by unincorporated companies and individuals. Equal treatment for all incomes—whether the disposition is corporation or by others—would appear to be the safest rule. This calls for a proper integration of personal and corporate income taxation.

V. Indirect Taxes

Indirect taxes play a very important role in the finances of developing countries. Its importance can be judged from the fact that during 1972-57, of the 63 L.D.Cs 70% or more of their revenue came from indirect taxes. In Pakistan, total taxes in 1980-81 are placed at Rs. 35,402.8 million with the share of indirect taxes at Rs. 29,257.9 million. So the direct taxes constituted 17.4% and indirect taxes 82.6%. Following table gives the direct and indirect taxes during 1980-81 as compared to the previous year.

Table
DIRECT AND INDIRECT TAXES

Heads	Rs. in million					
	1973-74 (Budget)	%	1979-80 (Budget)	% Share	1980-81 (Budget)	% Share
Direct taxes	1,110.0	15.4	4,102.4	14.2	6,144.9	17.4
Indirect taxes	6,091.0	84.6	24,738.1	85.8	29,257.9	82.6
	7,201.0		28,840.5	100.0	35,402.8	100.0

Source: Federal Budgets (1973-74) and (1980-81) Govt. of Pakistan.

The table indicates that the share of direct taxes has improved relatively. But what is more striking is that direct tax collection has improved and the growth in it on the average over 7 year period has been greater than in Indirect Taxes.

The structure of indirect taxation in these countries has to be fashioned with the same objective as direct taxation. It must be such as to raise the rate of capital formation in the economy while

providing revenue for public consumption and investment. Here again we must ask not simply how to raise more revenue for the government, but rather how to raise the rate of investment and at the same time get more revenue for the government. It is necessary to consider also the effects on the incremental saving ratio.

One justification for the taxation of articles that are widely consumed is that it is necessary to raise enough revenue to finance at least the essential governmental services.³⁵ In developing countries it becomes necessary to raise the greater part of tax revenue through commodity taxation. Looked at this way, commodity taxation is a contribution to meet the costs of common benefits and must be levied in an "equitable" way as far as possible. High rates on luxuries and low rates on articles of common consumption are widely accepted rules.³⁶ Such differentiation in rates introduces a broad element of progression.³⁷

When we look upon commodity taxation as a weapon for promoting economic growth, its justification lies in the fact that it has a tendency to check consumption.³⁸ However, it should be used more for checking potential increase of consumption than for curtailing the actual consumption of the masses.³⁹ It is easy to justify taxation that is intended to curtail consumption for health and efficiency. But the taxation of goods consumed by the general population in a poor developing country may seem to go contrary to our principle of laying the tax only on the element of surplus.⁴⁰ The question may therefore be raised whether taxation of mass consumption has any role at all to play in developmental financing. Since there is scarcely an element of surplus in the incomes of the masses of the people, it would be clearly undesirable as well as unjustifiable to force them to contribute to economic development out of their meagre incomes.⁴¹ To argue that such taxation is necessary for the maintenance of essential governmental services is one thing; but to say that we must augment tax revenue from this source to raise the current rate of investment is an entirely different thing, later, such a policy may not even be successful.

Raising the incremental saving ratio is one of the most difficult problems in underdeveloped countries. It must be remembered that it is not enough to persuade or cajole the richer classes alone to save for investment.⁴² In so far as a substantial part of the

increase in incomes accrues to the poorer sections of the population, they are in a position to consume more than before. Their marginal propensity to consume being very near unity, their consumption will tend to rise almost as much as their incomes.⁴³ If this is allowed to materialize, the increases in productivity will be almost-fully absorbed by increased consumption.⁴⁴ Increased commodity taxation could be used at this juncture to restrain increases in consumption and thus release some factors for purposes of investment.

Most indirect taxes of large yield are commonly believed to be regressive, and there is statistical evidence to support this evaluation for some of the principal indirect taxes in certain of the richer countries.⁴⁵ In the underdeveloped countries there is strong presumption that the traditional levies on salt and sugar are decidedly regressive (except possibly where these items are extensively produced in the nonmonetised sector). Taxes on articles such as common cloth, matches, tobacco, and oil are probably also regressive over middle and upper income ranges but may not be regressive at the lower end of the income distribution, especially in the countries where a considerable part of the population is employed mainly in subsistence agriculture or village economies with only limited participation in the monetised sector. Consumption of items such as automobiles, radios and other electrical appliances, the better grades of textiles, and cosmetics, is still confined mainly to a fairly small and prosperous class in many developing countries. Taxes on such items may be progressive up to a rather high income level in these countries.

VI. Conclusion.

The tax system of developing countries presents structural defects which affect taxable capacity. The existing structure is hardly conducive to a rapid growth of tax revenues and requires frequent changes in coverage and rates.

The inadequacy of the developing countries to raise sufficient resources for the public sector is reflected by the low tax/G.D.P. ratio. While the ratio of tax revenue to national income in developed countries during 1963-65, on the average was 30%,⁴⁶ it was more than 15% in only twenty seven out of the fifty two developing coun-

tries—the highest being 22.5%.⁴⁷ During 1972–76, the tax ratio for the former had increased to 33% and 16.25% in latter countries—of 63 countries the highest 15 had a tax ratio of 25.7%.⁴⁸ In Pakistan tax revenue as ratio of G.D.P. increased from 14% to 17% during the 1970–71 to 1979–80 period—far more rapidly than the growth in G.D.P.. However this increase in tax revenue was made possible only by new taxation, rather than by a high buoyancy of the Pakistan tax structure⁴⁹

In the developing countries there is preponderance of indirect taxes which generally tend to be regressive in incidence and yield, It is therefore necessary that a progressive system of taxation of incomes and wealth is superimposed on them. Agriculture which generates a relatively large share in the G.N.P. contributes a meagre sum to the national exchequer.⁵⁰ There is a general agreement among experts that agriculture is lightly taxed in these countries⁵¹ and means must be found to strike a balance in the sharing of tax burden between agricultural and industrial sectors. According to a study conducted by State Bank of Pakistan in 1969 tax falling on agriculture constituted less than 6% of the agriculture income, while tax falling on non-agriculture sector constituted 14% of the income in that sector. The principle of progressivity which has so far been inadequately applied here should be introduced, not only to fetch more revenue for the government but for reducing the inequities in incomes.

A tax system however scientific cannot achieve its objectives unless it is administered efficiently and honestly.⁵² The tax system of a country is adapted to a country's administration. In many developing countries administration leaves much to be desired. It is therefore imperative to have an efficient administration consisting of persons of high integrity so that tax potential of the country is fairly exploited. This can also be exploited by adapting tax system to the willingness of tax payers and minimising evasion.

Aware of the need to increase the tax revenues, the developing countries have taken steps from time to time to improve their tax systems. These have included changes in the rates and averages, as well as the stricter law enforcements. The economic development, increased monetization, increase in the size of foreign trade and improvements in tax system have enabled many of them to achieve

a faster rate of increase in their tax revenue than their national income.

Taxation is one of the principal means which can be used by the government for influencing over all demand, the long term direction of resources, and distribution of resources. In Pakistan, given the basic infra structure, technical know how, industrial leadership and development oriented government policies, we can fairly depend on taxation tool for the achievement of our objectives.

NOTES & BIBLIOGRAPHY

1. Because of the small public Sector the main source of government's revenues in developing countries are taxes. In Pakistan, for example, tax revenues accounted for 77.6% and 78% of the gross revenue receipts of the government of Pakistan in 1978-79 and 1980-81 (Budget in Brief 1980-81 p. 9).
2. Heller, w : "Fiscal Policies for under developed countries in Bird R, and Oldman, (Eds) 'Readings in Taxation in developing countries' (1967) p. 5.
3. Please, S, "Saving through taxation—Mirage or reality"—Finance and Development, March 1967 p. 5.
4. Landau, L. 'Differences in Saving rates among Latin American Countries'. Harvard University Press, 197 p. 121.
5. Ibid.p. 127.
6. Krishnamurty 'International comparisons of domestic savings rates'. IBRD, ECO. Deptt. 1961 p. 51.
7. Bhatia, R. "A Note on consumption, income and taxes" P-67.
8. Morss, E. "Savings and Economic growth in developing countries". I.M.F. An empirical study Memoranda (July, 1968) p. 93
9. Singh, S. M. "The determinans of aggregate savings" (Domestic Finance Division IBRD April, 1971. p. 371.
10. Hauthaker, 'An International comparison of personal saving' New York ; Macmillan and Co 1965 p. 56
11. Taylor Milton, "Fiscal incentives for development in Panama' in Bird Oldman (Ed.) op. cit. p. 220.
12. Ross & Christensan, "Tax Incentives for industry in Mexico" Harvard Taxl Programme, p. 101.

13. Chaudhri, S. D. "Income Tax Incentives and Industrial Development in Pakistan" *Eco. Journal, Govt. College, Lahore* Vol VI No. 1 1973. p. 72.
14. Papanek G.F. 'Pakistan Development' Harvard Press 1967 p. 27.
15. Kaldor N. "Taxation for Economic Development" in Robinson E.G. (Ed) 'problems in Economic Development' (Macmillan : London), 1956. p. 170.
16. Kauffman Keneth, Income Tax exemption and Economic Development, in "National Tax Journal" Sept. 1960. p. 164.
17. Chaudhry S. D. op. cit p. 89.
18. Ibid
19. Groves H. M. 'Production, Jobs and Taxes' New York, 1944, p. 14.
20. Hicks, U. K. 'Public Finance,' London, 1955 p. 304.
21. Mill J.S. "Principles of political Economy, Book V, Ch. II Section 4.
22. Kaldor N. 'An Expenditure Tax' George Allen & Unwin Ltd. London 1965 p. 93.
23. Ibid, P. 225
24. Ibid p. 223.
25. Govt. of Pakistan Ministry of Economic Affairs. "Report of the Economic Appraisal Committee" p. 158.
26. Groves, H.M. Op. Cit. p. 308
27. Hicks, U.K; OP. Cit. p. 308.
28. Kaldor, N. Op. Cit p. 146.
29. Ibid p. 46.
30. Ibid p. 230.
31. Bhatia, R. Op. Cit. p. 93.
32. Chaudhry S.D. "Inflation and Income Tax" in *Economic Journal, Govt. College. Lahore* Vol. X No, 2 p. 9.
33. Morss, F. Op. Cit. p. 103.

34. Groves H.M. Op. Cit. p. 38.
35. Harely H. Hinrichs. 'Tax Structure change during development' Longman, London, p. 229.
36. Ibid. p. 321
37. Schderinger E.R. "Indirect Taxes and development Finance" Heineman : London. p. 37
38. Ibid. p. 41.
39. Musgrave R.A., "Taxation in under developed countries" New York, 1969 p. 83.
40. Harley H. Hinrichs Op. Cit. p. 117.
41. Hautheker, "Taxation and Public Policy" New York Macmillan & Co. 1969 p. 101.
42. Singh, S.M. op. cit p. 93.
43. Ibid. p, 124.
44. Musgrave R.A. op. cit. p.107.
45. Robert Eugene. 'Public Policy for Development' G. Allen, & Unwin, 1971. p. 21.
46. UNCTED Secretariat. 'The mobilization of internal resources by the developing countries' TD/7/Supp. pp. 20-27 Sept. 15, 1947.
47. Lotz Jr. and Moss E. "Tax Efforts in developing countries," Finance and Development Vol. 6 No. 3 (1969) Table.
48. Calculated on the basis of the table given in 'Finance and Development March, 1980.
49. State of Pakistan's Economy : 1970—1 to 1970—79. P.I D.E. Islamabad, 1989 p. 22.
50. In Pakistan while agriculture contributed about 50% of G.N.P. its share in total tax revenue (excluding Water rates) comes to only 27% see interim Report of Taxation Commission (1971.)
51. UNCTAD : Ibid.
52. In Indoensia the percentage of total taxes provided by the rural families of the country fell from 7% in 1939 to 1% in 1952 partly due to the substitution of the weaker Indonesian administration for the Dutch. See Douglas S. Poarman : 'Financing Economic Development in Indonesia' Jan. 1956. pp. 171 - 85.

ECONOMICS AND HEALTH PLANNING

Shahid Tanveer*

The role of economics in the medical care system is understandably a matter of some controversy and discussion. But there is no doubt about the fact that the phenomena of health and economics are very closely related nay interdependent. Without health, men earn little wealth; without wealth men seldom attain full health. People who are sick cannot produce food or earn enough to buy it.

If masses are sick, hungry and ignorant, they can not better themselves. So we have the Misery-Go-Round, the vicious circle of disease - underproduction - ignorance-squalor - malnutrition and more disease. It is fairly self evident that the burden of sickness hampers the process of economic development.

In the light of stupendous importance of this sector, it is imperative to plan health resources rationally and efficiently.

The discipline of economic has certain unique concepts/techniques distinct from other disciplines, which can be of use to planners. With limited resources in health care and the appearance of continuing excess demands and/or unmet needs, choice has to be exercised in deciding how much of which resources to devote to different services and different aspects of health care. The significant areas of work, where the tools of economic methodology could be of assistance to health planners are, succinctly, discussed below.

I. Eliciting Valuations in Health Care

An economist can assist in eliciting the valuations which appear to underlie health service policy. One debatable point pertaining to decision making process in health care is: whose values are to count the government's? health authorities? the medical profession's? the other health care profession's? the patient's? society's at large? It is not for economic profession to determine what value system should be adopted or should not be adopted. The role of economist

*Post Graduate Student, Govt. College, Lahore.

at this level is to indicate the possible implications of different value systems and once a value system is determined, to indicate how, within the chosen framework, the philosophy and tools of economic analysis can assist in ensuring more efficient and effective planning of health care resources. In the issue of valuation, a lot depends upon the definition we assign to health. The World Health Organization defines health as 'a state of complete physical, mental and social well-being, and not merely the absence of disease or infirmity.'

The measuring and valuing of health outputs and needs are closely related to health status indices or indicators. If health outputs and needs are to be valued, then they must first be made commensurable and quantified. To evaluate different types of health care, it becomes necessary to know the relevant health care production function, i.e. to determine the quantified relationships between inputs to health care—doctor and nurse time, X-rays, catering services, patients own time; and the outputs in terms of the effects of the inputs on the patient's health state. Given this relationship and the knowledge of the values to be placed on the inputs and the outputs, the problem becomes one which lends itself to analysis by cost effectiveness and cost-benefit studies. A health policy farmer can also learn something of value from the economist's conceptual framework about demand. Demand studies for different types of health care can shed light on the level of need for particular services.

II. Costing in Health

The second main area of work is concerned with establishing what are the true costs of delivering health care. By true costs is meant not just the accounting costs as they face particular organization but trying to estimate what is the sum total of all the real resources that go into it. This means including costs which the organization does not normally recognize, like the use of patients time, loss of output elsewhere in the system etc. This can then serve as a basis for evaluating the overall cost implications of changing the method of delivering care, e.g. by changing the balance between different resources used.

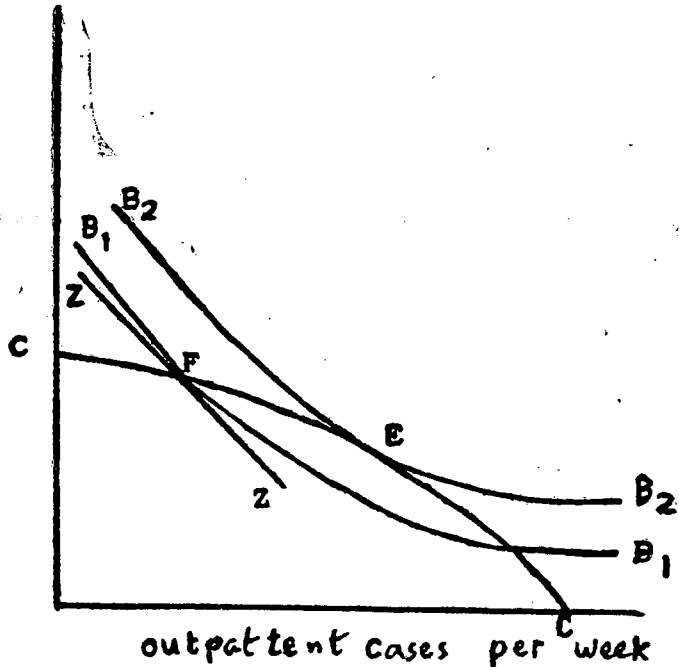
Planning is not a descriptive process, nor is it just a forecasting process. It is a choice process with goals. The weighing of different choices leads us into costing. It is a fact that resource devoted to

one form of treatment or provision of a particular health service, are not available for other purposes. It calls for exposing the consequence of alternative choices in a world of scarcity.

The diagram below explains the application of costing concept in the planning of hospital costs. It exhibits how a more efficient development of scarce resource could be attained at no extra cost.

The Costs of two or More Outputs

Fig. 1
Inpatient cases
per week



Hospitals produce a wide range of services from shared inputs. Fig. 1 portrays how a given budget might be spent on two such services. The services might be inpatient cases and outpatient attendances per period.

The bowed out curve C C is drawn on the assumption that hospital is more efficient in producing a mixture of services than in specialising. The slope of CC curve at any point depicts the opportunity cost of substituting one output for the other within the budget. It is possible to introduce assumptions about benefits as well as costs into this picture. The curves B₁ B₁ and B₂ B₂ called indifference curves, exhibit the level of benefits that can be achieved by providing combinations of two services in question.

They can be thought of as contour lines, each line making combination of two services which are deemed to be of equal benefit to the population of patients. Successive indifference curves describe explicitly the judgement about benefits.

The diagram may be used to supply a rationale for striving to improve costing for Health Care planning. Suppose that doctors (going perhaps on the time they themselves utilize in treating patients) assume falsely, that outpatient and inpatient costs are equal, whereas in fact inpatients costs twice as much as outpatients. Their inaccurate perception of costs would be described by line ZZ. They would tend to choose an equilibrium level of services at F, in Fig. 1, where the highest level of benefits is consistent with the given budget CC. This would be an equilibrium of ignorance however. If the true costs could be identified, then the doctors might be prepared to provide many more outpatient consultants and slightly fewer inpatient admissions to yield a net gain in benefits (as perceived by them) without any increase in the budget (a movement to E).

III. Measurement of Costs and Benefits

The third category of work where the discipline of economics can make useful contributions is studies of effectiveness, so as to evaluate the relative costs and benefits of particular policy options. Such studies require a substantial reliable data. The problem of measuring cost occurs when the amount paid for them does not reflect their value in alternative uses. For example compare the different treatment of costs of buildings in health service. It is highly unlikely that the costs of caring for a person in hospital will include the cost of building because they do not enter into hospital accounting or costing system after they have been built. However, these buildings have other uses both within and outside, the health service and so does the land on which they stand. It is desirable that the formulators of health projects should include the costs of buildings in a specific piece of policy analysis.

What are the benefits and costs of a particular health project? The first question to be resolved is "benefits and costs to whom? There are at least three sets of actors one might want to consider: (1) the health authority; (2) the patients, actual or potential, and (3) the hospital staff. The health authority, as the body responsible for initiating any change, should always take a broader and realistic view of costs and benefits.

In order to have a vivid view of cost-effectiveness analysis in health projects, diagram is drawn below in the light of a case study of the care for elderly carried out in Esse by Wager. It depicts the relative costs of alternative patterns of care for the elderly.

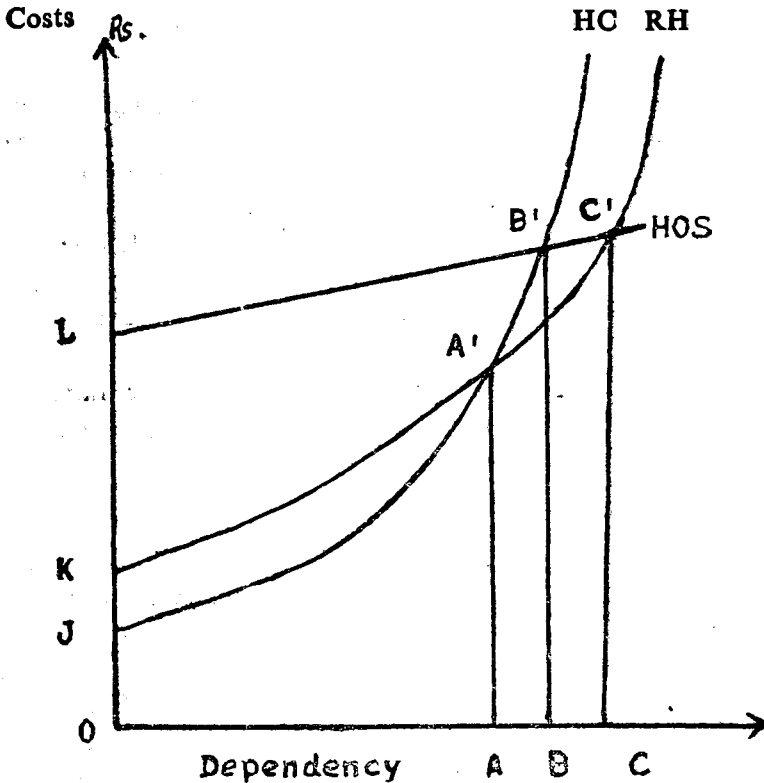


Fig. 2

A CASE STUDY OF ESSEX :

The Relative Costs of Alternative patterns of Care for the Elderly

In Fig. 2 the curve HC and RH show the cost of home caring and residential home caring, respectively, for elderly. The line HOS exhibits the costs of hospital care.

There are three important cross over points in the figure-marked A', B', and C'. CA is the dependency level after which the costs of residential home care are less than the cost of care in person's own home ; OB is the dependency level beyond which the costs of hospital care are less than those of home care ; CC is the dependency level at which hospital costs start to be less than those of residential home care. OJ is the basic costs for an independent person living alone in the community.

The basic costs of residential care are OK, and will include the minimum costs of staffing; the home-costs will increase as dependency increases, mainly because extra staffing will be required. The costs of domiciliary care also increase. This study reveals that there is quite a considerable scope for expenditure on domiciliary care before the cross-overs with the costs of other forms of care are reached. As Wager pointed out, the waiting list for residential home places would have been reduced if these extra resources had been made available. Turning now to the benefits' side of equation and taking up the point about value of independence, if decision maker did believe that residential care was less beneficial for people than domiciliary care around the dependency level OA, they would be prepared to devote more resources than those represented by A' A' to domiciliary care.

The general information requirements of the Essex model are :

- (a) the identification and measurement of the relevant characteristics, such as dependency states, medical condition, supervisory requirements which affect decisions on the appropriate mode of care ;
- (b) the identification and measurement of the major fixed costs- that is, those costs which are fixed once the size of the hospital or residential home is agreed and that will not change until new units have to be constructed ;
- (c) the identification and measurements of costs which vary with the number of people cared for and their dependency e.g. the basic 'hotel' costs of hospitals and residential home will vary with the number of persons cared for, and the labour costs of all the services will vary with the number of people cared for and the amount of care that has to be given ;
- (d) consideration has to be given to the value, if any which is to be placed on the informal help from volunteers, relatives and friends ;
- (e) the relative benefits of the different modes of care have to be measured and valued ; or, if this not possible, given the present state of knowledge, these benefits will have to be assessed from professional opinions and the opinions of both the providers and recipients of care.

One of important lessons of the Essex study is that it shows how a model developed at local level can subsequently be used in other areas.

IV. Manpower Planning in Health

This is a very important area of study. It implies a strategy for acquisition, utilization, preservation and development of health personnel in conformity with the changing pattern of demand for health services. It is very much related to the supply elasticities of different inputs; that is to say, how the supply of the resources that the system needs, is influenced by their prices (that is wage levels, salary levels, inducement payments, and so on). It shows how manpower reacts to financial incentives.

In order to sum up the theme in a systematic manner, Table 1 has been prepared which elucidates the linkage between economics and health planning.

TABLE I

The Relevance of Economics to Planning

<i>Some Planning Issues</i>	<i>Prior Questions</i>	<i>Relevant Corpus of Economics Examples</i>
A How much should be spent on health ?	1. What is health ?	Identification and measurement issue in illness/disease ; methods of approaching indicators of 'well being.' Consumer behaviour patterns ; valuations of life consideration. Need versus demand issues
	2. What are the determinants ?	
	3. How do individuals value their health ?	
	4. What value does society place on health ?	
	5. Whose values should be taken account of and how ?	
B How much should be spent on health services ?	1. What distinguishes health services ?	Human capital theory. Household production functions. Theory of public goods and externalities. Behaviour theories ; demand and supply factors at work.
	2. What are the determinants of health ? What contribution does health services make ?	
	3. How do different health care systems handle investment, distribution and rationing decisions ?	

Some Planning Issue

Prior Questions

*Relevant Corpus of Economics
Examples*

C Why do patients prefer one health agency rather than another ?

Why is the uptake of a service low ?

How can patients expectations be controlled ?

How can patients preference be changed ?

D What size facilities should be built ?

Where should they be built ?

1. Who demands medical care ?

2. What determines the demand for health services ?

1. What determines the cost behaviour of organisations ?

2. How and why do costs change in response to changes in the scale, location or composition of services ?

Theories of household behaviour.

Generation and interpretation of (derived) demand schedules.

Determinants of the demand for individual services (price elasticity, time and money costs, income and social class factors).

Access and equity considerations.

Production functions and the estimation of cost curves.

Determinants of hospital and other agency cost variations (casemix, quality factors) Optimum size of health agencies (economies of scale variations).

<i>Some Planning Issue</i>	<i>Prior Questions</i>	<i>Relevant Corpus of Economics Examples</i>
<p>E Is this labour supply available and adequate ?</p> <p>If not, how can it be influenced ?</p>	<p>1. What mix of resources will produce particular services ?</p> <p>2. What determines the supply of labour ?</p>	<p>The demand for factors ; marginal productivity theory.</p> <p>Labour markets; notions of 'shortage' and 'surplus'</p> <p>Factors influencing supply (price elasticities, income and leisure)</p>
<p>F What incentives can be introduced to encourage efficient behaviour ?</p>	<p>What barriers exist ?</p>	<p>Notions of 'efficiency' Behavioural theories of government and non-profit organisations.</p> <p>The role of inducements (rewards and penalties) and (budgetary) accountability.</p>
<p>G What are the implications of introducing a new service ?</p> <p>Is it worth introducing ?</p> <p>What are the implications of reducing the level of service provided ?</p>	<p>1. What are the alternatives ?</p> <p>2. What are the merits and demerits of the service ?</p> <p>3. What type and scale of coverage is desired ?</p> <p>Over what period of time ?</p>	<p>Micro-economic evaluation costs-benefit and cost-effective analyses.</p> <p>Size and incidence of costs and benefits.</p> <p>Opportunity costs and marginal cost-benefit considerations.</p> <p>Short run and long-run factors.</p> <p>Indicators of need and outcome.</p> <p>Distributional aspects of health care.</p>

In the above table, first column identifies a number of issues that could reasonably be expected to be of direct relevance to planners. Nor infrequently the economist, in looking at such issues needs to generate further questions which require answering before the issue in question can be tackled. These appear in the second column under the heading 'prior questions'. The final column shows what economists can contribute in that territory and offers pointers to those parts of economic theory which can best assist to elaborate the planning issue.

BIBLIOGRAPHY

1. Barry, Broaowski, Fisher, Huxley, 'Health and planning.'
2. Kenneth Lee (ed), 'Economics and Health Planning,' Great Britain, 1979.
3. Barnard, K.A., 'Health Planning,' 1974.
4. Berki, S.E., 'Hospital Economics, Lexington' Books, 1972.
5. Cooper, M.H. and Culyer, A.J. (eds), Health Economics Penguin, 1973.
6. Creese, A.L. and Fielden, R., 'Hospital or Home Care for the Severely Disabled,' June 1977.
7. Culyer, A.J. and Wright, K.G. (eds), 'Economic Aspects of Health Services,' Martin Roberston, 1978.
8. Harper, D.R., 'Comparative Disease Costing in Surgical Patients', in Hospital Costing and the Clinician, DHSS 1978.
9. Hauser, M. (ed), 'The Economics of Medical Care,' Allen and Unwin, 1972.
10. Melinek, S.J., 'A Method of Evaluating Human Life for Economic Purposes,' Accident Analysis and Prevention, October, 1974.
11. Mishan, E. G., 'Cost-benefit Analysis,' Allen and Unwin, London. 1971.
12. Mooney, G.H., 'The Valuation of Human Life,' Macmillan, 1977.

Book Review :

ECONOMIC PLANNING AND SOCIAL JUSTICE IN DEVELOPING COUNTRIES :

By Prof. Ozay Mehmet,
Croom Helm, London

After a long debate on the merits of postwar development philosophy ideas on new planning strategy for LDCs' seem to have now sufficiently crystalized. At least they appear pretty clear in Prof. Mehmet's refreshing book : Economic Planning and Social Justice in Developing countries.

Carefully worded, though sufficiently illustrated with empirical data, this book does not attempt to introduce any revolutionary ideas. Instead, it aims at reforms only. In Prof. Mehmet's own words : "the pursuit of egalitarian objectives in consumption needs to be counterbalanced with some scheme of rewards and incentives that does not unduly harm productive enterprise and private initiative—rather than aiming at some Utopian restructuring of man and society, we wish to utilize economic planning and policy in LDC's as tools for enabling everyone to enjoy comforts of modern technology."

The background to this all is provided by the experience of postwar development effort undertaken by D.Cs. and L.D.Cs. Postwar development planning was based on Keynesian thinking summarized in his General theory of Employment. In Prof. Mehmet's opinion that approach has failed. Economists are now anxious to find better alternatives, especially for L.D.C's. What LDC's are in search of, particularly in 1980's, are disaggregated theories suited to their peculiar conditions rather than a General theory of Keynesian type. In Prof. Higgin's words, 'economists seek to be acknowledged as 'Social Doctors' (those who do not have a general theory of health) than 'Social Engineer'. Prof. Mehmet's book is in line with this trend of thought.

In part-I of the book the author enlist various defects of post-war economic planning in LDCs. The sole concern of development philosophy in these years was an effort to increase the rate of capital

accumulation and reduce capital-output ratio or do the both. This exercise was carried out via model building. One well known model was that of "growth via industrialization" which was believed to be universally true. The results of such an aggregated model were, of course, far less than satisfactory. Planning experience of Nigeria, Somalia, Sudan, Pakistan, among so many others, amply demonstrate its limitations. The greatest drawback of this approach was lack of attention given to social, political and institutional realities of each country. In the same fashion acceptance of two-sector models in labour surplus economies has proved a fallacy. In Prof. Mehmet's view there is a "unified market mechanism manifesting trade-off between open unemployment in modern sector and disguised unemployment in traditional sector." Thus neglect of agricultural sector in LDCs, has proved a costly mistake.

Moreover, economic planning in LDC's has enhanced properly (Assets) income rather than employment income; hence concentration of income in the upper strata of population. Distribution effects of growth have been ignored. In fact development process has been guided by the Elite. Effects of elitist planning are evident in various indicators of absolute poverty found in LDCs. The single most important factor responsible for this trend seems to be the anti-rural bias of industrialisation in LDCs. This bias is evident not only with reference to social security programme, education and health services, but also in terms of the benefit of Green revolution heaped by rural elite only. The last part of the assertion is, however, debatable especially with reference to the positive effects of Green revolution, on the average rural income in many LDCs in late 1980's.

Finally, wrong employment policies, based on Keynesian thought, believed that the structural and Institutional structure of LDC's differed from DJ's only in degree and stage. Thus, not being able to correct unemployment problem.

Five case studies of Malaysia, Liberia, Pakistan, Brazil and Uganda fairly support the theme of the book i.e. every where elitist pattern of growth has arrested pace of genuine development.

In the last part of the book, Prof. Mehmet comes out some remedies, though in a muffled tone, for a change towards egalitarian planning and reforms. In a word, it is a plea to make economic planning and poverty an anti-poverty tool. The core of this concept

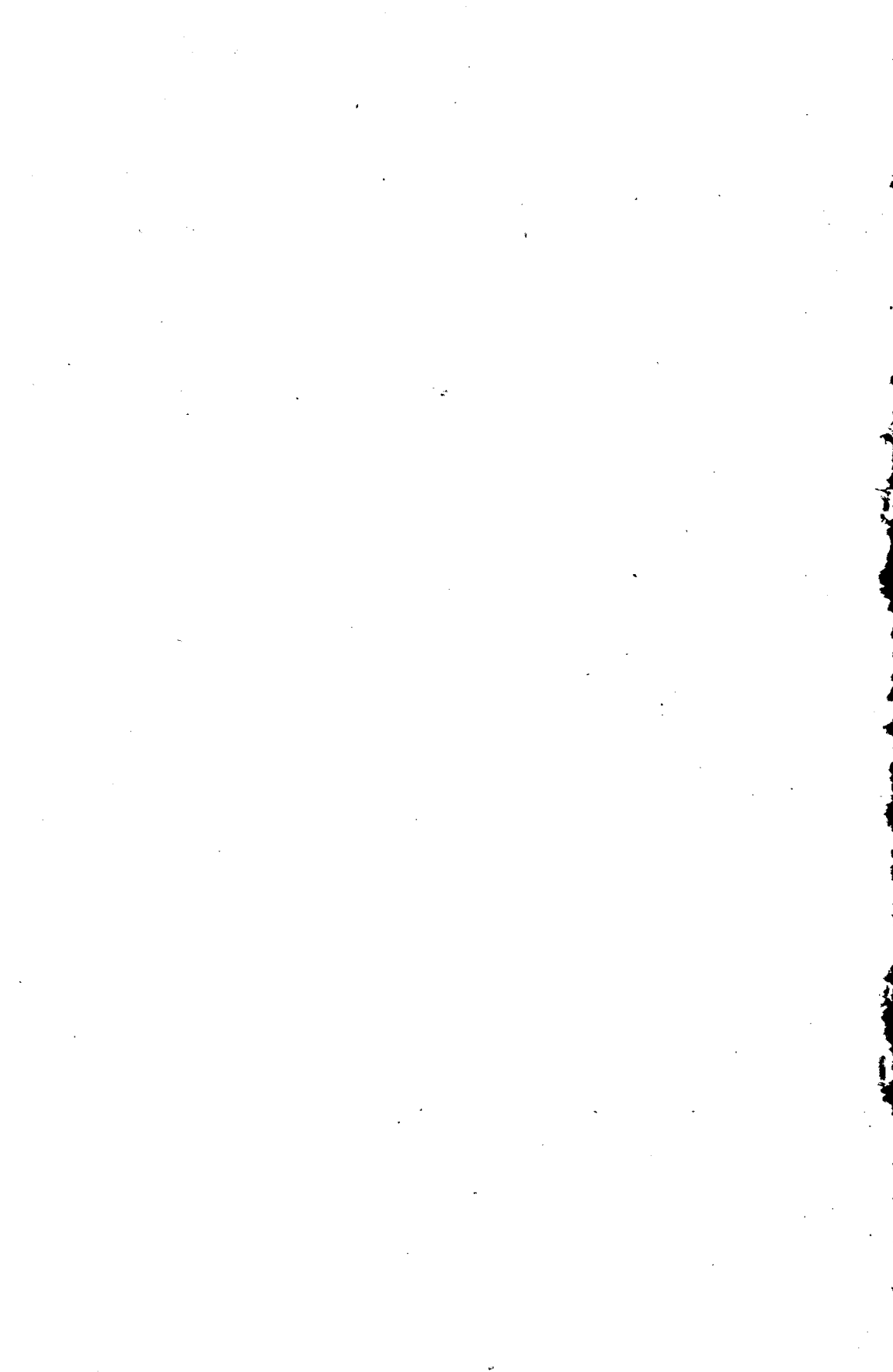
can be explained with reference to the following: (a) production and consumption of goods and services must be for the "common good" and satisfy both efficiency and equity criteria; (b) anti-poverty planning and policy instruments should be utilised to reduce excess disparities; and (c) the political decision making process must be reformed to permit expanded popular participation so that correct social choices are selected.

Statements of desired objectives of economic planning in LDC'S is duly supported by a list of possible instruments of egalitarian development. Discussion starts with the merits of two options in strategy viz., 'Top-down' Bottom-up'. While the first could hopefully prevent decline in absolute poverty levels, the second option is considered relatively better. The merit of the later lies in peoples involvement activity. Birth of new institutions like regional planning offices and new fiscal and budgetary procedures would be a natural outcome of this strategy. The author also recommends some specific fiscal and economic policy instruments for the success of new scheme. Fiscal measures would consist of direct taxes with a view to avoiding concentration of wealth. Progressive wealth and inheritance taxes will also be introduced with the same purpose. On the other hand, realistic recommendations are made with respect to state subsidies. They should be available for social benefits only while state protection be ready for "human capital formation," rather than physical assets. We believe this scheme would also weaken the infant—industry case in LDC's.

Sole purpose of Prof. Mehmet's book is to establish top priority for maximization of "Social Good." His scheme of things include measures for an integrated economy, new look on public education, comprehensive employment policy, radical food programme and above all, political reforms for social choice. He believes that genuine public participation might well be a step towards determining an "Ideal output"—optimally distributed and resulting in maximum social welfare. This, of course, would be possible under restricted conditions of pareto optimality.

Whether problems of interpersonal comparisons and aggregating individual preference would actually let idealistic conditions become reality is yet to be seen. The ideal, anyhow, is noble.

Khalid Aftab





GOVERNMENT COLLEGE
ECONOMIC JOURNAL

VOLUME XIII

1980

NUMBER 1 & 2

- ▶ REAL WAGES, GROWTH, INFLATION,
INCOME DISTRIBUTION AND
POLITICS IN PAKISTAN, INDIA,
BANGLADESH, AND INDONESIA ... 1
—*G. F. Papanek*
 - ▶ STRATEGY OF EXPORT-LED GROWTH
WITH SPECIAL REFERENCE TO
PAKISTAN ... 40
—*Dr. Ziauddin Ahmad*
 - ▶ CLIMATE, FOOD AND POPULATION :
PROSPECTS FOR A MANAGEABLE
FUTURE ... 61
—*Walter Orr Roberts*
 - ▶ TAX-POLICY AS AN INSTRUMENT
OF ECONOMIC GROWTH WITH
SPECIAL REFERENCE TO PAKISTAN ... 94
—*A. S. Khalid*
 - ▶ ECONOMICS AND HEALTH
PLANNING ... 114
—*Shahid Tanveer*
 - ▶ BOOK REVIEW ... 125
—*Khalid Aftab*
-

DEPARTMENT OF ECONOMICS
GOVERNMENT COLLEGE, LAHORE - PAKISTAN