Studies on National Income and its Distribution

Taufiq M. Khan
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STUDIES ON
NATIONAL INCOME AND
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Introduction to the Series

The Pakistan Institute of Development Economies has compiled a series of *Readings* on various aspects of the development problems of Pakistan. These *Readings* consist of important studies relevant to the subject matter to which the different volumes in this series pertain. It is hoped that the studies presented in these volumes will go a long way to fill in the lacunae in the field of economic literature for Pakistan.

All of the studies included in this volume were originally published in the Institute's quarterly journal, *The Pakistan Development Revieiv*. The Institute has now been in existence for over a decade and *The Pakistan Development Review* is in the tenth year of its publication. During this period, the Institute has made very significant contribution in various fields of applied economic research. The studies carried out at the Institute have been of immense value to the planners, researchers and academics. Most of these studies were published in one form or the other in *The Pakistan Development Review* which is widely recognized, both in Pakistan and abroad, as one of the outstanding journals in the field of Development Economics.

In recent times we have been receiving suggestions from outside and have been increasingly becoming aware ourselves of the desirability of compiling in a number of volumes the significant contributions of the Institute in particular areas of research in development economics. We have come to recognize that this would be of significant use not only to those planners and researchers who would like to have important pieces of analyses in any particular area to be collected in a single volume, but also to the teachers and students at the advanced levels at the universities who have been handicapped in the teaching of courses in economics of Pakistan because of the lack of analytical and empirically oriented studies. It is in the hope of fulfilling these needs that we have embarked on. the project of compiling books of readings selected from the studies published by the Institute.

It may be noted that we have confined ourselves to the studies actually undertaken by the members of the research staff at the Institute. *The Pakistan Development Review* regularly attracts contributions from eminent economists outside the Institute, both national and international. Many of these contributions are highly competent and relevant. But we have found it useful to confine ourselves to the studies carried out *at the Institute* because one of our purposes is to highlight the contribution of the Institute in specific areas of applied economic research.

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STUDIES ON
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Introduction

Taufiq M. Khan

The present volume, entitled the "Studies on National Income and Its distribution", is the fifth in the new series on *Readings in Development Economics* and consists of five selected articles written by the members of the staff of the Pakistan Institute of Development Economics. All of these articles have been previously published in the Institute's quarterly journal, *The Pakistan Development Review.* The studies included in this volume examine and analyse the functioning of the economy by measuring its gross national product and structural change over time and devote considerable attention to the problems of income distribution among the various factors of production and especially the wage-earning classes.

The various aspects of national income measurement and distribution covered in these articles are of vital importance for a developing country like Pakistan. During the past two decades, the country's economy has passed through two distinct stages of growth. The first decade from 1949/50 to 1959/60 was marked by a stagnation in the economy and the per capita income stayed at more or less the same level throughout the period. The rate of growth in gross national product was the same as the rate of growth in population and, hence, the per capita income did not register any gain. In the second decade, 1959/60 to 1969/70, the gross national product rose by about 5.5 per cent per year and the per capita income by about 2.5 per cent per year. The benefits of the rising national income did not, however, reach the poorer sections of the society because of a development strategy which emphasised a redistribution of income in favour of the high-saver groups.

During the 1950's, the prices of agricultural commodities were kept relatively low which discouraged higher investments in agricultural sector.

The rate of growth in agriculture did not even keep pace with the growth of population, and the resulting gap in the availability of foodgrains had to be filled in by an increasing quantity of foodgrain imports. However, from the late 1950's onward, the terms of trade began to move in favour of agriculture which exercised a beneficial effect on agricultural incomes. In recent years, the introduction of new varieties of wheat and rice seeds, availability of more and better fertilizers, and increased supplies of water have resulted in improved crop yields which have stimulated the pace of growth in the economy. Instead of emphasizing industrialization at every cost, the development strategy became more balanced and attacked agricultural development from the supply side.

The first article by Taufiq Khan and A. Bergan presents the national and provincial income estimates for 1949/50 to 1963/64 and measures the structural change which took place in Pakistan's economy during this period. Their figures clearly indicate two distinct periods, namely, 1949/50 to 1959/60 when the per capita income remained at more or less the same level, and the period 1959/60 to 1963/64 when the growth patterns seemed to have changed and the per capita income showed an appreciable increase year after year. The higher growth rate was achieved both in agricultural as well as non-agricultural sectors. However, there were marked differences in the growth rates of agricultural and nonagricultural sectors. The latter grew at a rate which was twice as high as that of agriculture and as such the contribution of nonagricultural sectors to gross national product gained in relative weight year by year. The structural change in the economy is reflected by the fact that agriculture's contribution to GNP gradually decreased from 60 per cent in 1949/50 to 49 per cent in 1963/64.

The authors have also estimated the provincial products of East and West Pakistan. Since the two provincial economics are distinctly different in composition and envirotimcnt^ tii c comparison of their gross products or per capita incomes is subject to all those well-known difficulties which are inherent in comparing two economies. The limitations of such comparison ^rc further increased by the paucity of data which may vary in accuracy from province to province, year to year, and sector to sector. Again, the purchasing power of rupee and the extent of exchange economy in the two provinces may be diiferent which may render a comprehensive comparison more difficult and less meaningful. Perhaps a better way to overcome these difficulties is to compare the rates of growth in the two provinces over the period under study. During the first decade, 1949/50 to 1959/60, the gross provincial product of East Pakistan showed an increase of 1.4 per cent per year but since population was increasing at an annual rate of 2.4 per cent, there was a decline in per capita income of 1 per cent per year. As a contrast, the gross provincial product of West Pakistan rose by 3.5 per

cent per year and the per capita income by **i.i** per cent. The trends during 1959/60 to 1964/65 show that the average rate of growth in East Pakistan was the same as in West Pakistan. Since East Pakistan had comparatively a lower rate of growth, this meant a higher acceleration in East than in West Pakistan. Because of the uneven rates of growth in the earlier decade, the disparity of income between the two provinces grew wider upto 1959/60 and then remained constant over the period from 1959/60 to 1964/65.

In the next article, Asbjorn Bergan has undertaken a study of personal income distribution in 1963/64. In spite of the fact that the study is confined to one year only and that the data used for obtaining conclusions are weak, it throws some light on the distribution of personal income in Pakistan. The situation obtaining in the year under study may not be radically different from other years and as such it broadly indicates the existing patterns of distribution. It will, of course, be interesting to know the changes in income distribution as a result of economic development over a period of time.

A few important conclusions of this study are summarized here as they shed some light on the composition of the economy. Of the total personal incomes, the share of rural areas was 81 per cent and that of the urban areas only 19 per cent. In East Pakistan, the urban share was one-twelfth only compared to one-third in West Pakistan. The average rural per capita income was only two-thirds of its urban counterpart. The average urban per capita income was more or less the same in East and West Pakistan but East Pakistan had 18 per cent lower per capita rural income than West Pakistan.

Bergan has worked out the concentration ratios for rural and urban areas of the two provinces. The urban areas of East Pakistan show a greater incoUeilitv in iiicoinc distribution tlisn orbciii. ciiest of the other province. For the country as a whole, however, there is a greater inequality in urban areas than in rural areas.

The article by Azizur Rahman Khan on the movement of real wages of industrial workers examines the trends in the average standard of living of workers by deriving an index of real wages. He also looks into the problem of "real cost of labour" from the employer's viewpoint for which he deflates tlie index of money-wage rates by the index of the price of the product of the industry concerned. The other related measures which he has obtained are the regional differences in wage rates and the relative position of the workers in the scale of income distribution.

Unfortunately, the limitations of the existing data were of such a serious nature that Khan had to put in a great deal of effort in reconciling

the various available scries all of which were deficient in coverage and accuracy. Many of the sudden and sharp changes in both directions in average wage rates were found to be due to the differences in coverage from year to year. The earlier censuses of manufacturing industries (CMIs) were grossly deficient in coverage and accuracy. It appears that the compilers of these data did not give much attention to the needs of the economic analyst and did not explicitly warn him of the limitations of the data. The earlier CMIs did not even show the percentage of the enterprises covered in each industry and one may, therefore, question the representativeness of these data for the industry as a whole. These were the years when industrialisation was just starting in the country and the omission of a few big firms ol-factories from the coverage because of nonresponse could introduce a very substantial factor of error in the results. It is in this background that Khan's efforts to compilc data which may lead to worthwhile results assume considerable importance.

The results obtained in. the study by a careful sifting of facts confirm the hypothesis that in a surplus labour economy real wages tend to stabilize around a subsistence level and the fluctuations remain confined more or less to adjustments with the movement in cost of living. The wage level of industrial labour in Pakistan is not disproportionately greater than the "average wage" in agricultural activities because of the availability of surplus rural labour which can be attracted to industries at a fairly low incentive differential.

The article by Swadesh Bose is an exploration of the trends of real income of the poorer sections of the agricultural population of East Pakistan consisting mainly of the landless labourers. Here again the paucity of historical data of the requisite quality has played its part in curtailing the intended scope of the study. However, utilizing direct and indirect factual evidence, Bose has been able to show that real-income level of the poorest stratum of rural population of East Pakistan declined in the 1950's and did not rise significantly in the 1960's. The major causes contributing to the decline of real incomes of agricultural workers were a fall in the crop area per head of population mainly because of a rapid growth in population, adverse terms of trade for agriculture in the 1950's, and a lowering of nominal wages in some years of 1950's.

In a surplus labour economy, the level of wages is likely to remain at a level which is just enough to provide means of subsistence to the wage earners. A further decline in the wages or incomes of the poorest section would affect this class most adversely. In fact, it will be difficult to survive at a wage which does not even provide the minimum physiological require-ments of the working class. Bose is conscious of this apparent inconsistency

in his results and the above hypothesis. He is, however, inclined to think that the subsistence level means the conventional minimum standard of living and not the minimum calories and the minimum clothing required for survival. As such, a temporary reduction in the level of consumption is possible.

The last paper by Abdul Ghafur compares the purchasing power of industrial wages in East and West Pakistan. Using the official data for cost of living indices, Ghafur determined a bundle of binary and unique goods, *i.e.,* goods common to the bundles of goods consumed in East and West Pakistan and commodities not common to both the bundles, and evaluated the binary commodities at the prices obtaining in East and West Pakistan separately. Since the weights of binary commodities in the bundles of goods constituted a high percentage, the comparison led to meaningful results.

Measurement of Structural Change in the Pakistan Economy: A Review of the National-Income Estimates 1949/50 to 1963/64

Taufiq M. Khan and Asbjorn Bergan

Measurement of Structural Change in the Pakistan Economy: A Review of the National-Income Estimates 1949/50 to 1963/64

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INCOME ESTIMATES FOR PRE-PARTITION INDIA

A number of national-income estimates are available for pre-Partition India. Many of these estimates, especially those pertaining to the last quarter of the 19th and the early 20th centuries, had their origin in political controversy. The estimators were mainly concerned with proving or refuting the idea that per capita income was very low and that the government had failed to improve the economic conditions of the masses [6]. The earlier estimates were based on scanty data but as time passed, the basic statistics as well as the methods of income estimation improved. The studies of national income of British India, undertaken by Dr. V.K.R.V. Rao, were exhaustive and comprehensive and still serve as a useful reference for all those who are interested in the history of national-income estimation in India [15]. Because of the general lack of economic data in India, Dr. Rao conducted a number of ad hoc enquiries in different parts of India to fill in the existing gaps in data.

The various estimates of per capita income in India before Partition are shown in Appendix Table A-1. These estimates are at current prices. Because of differences in concepts and methodology, these estimates are not entirely comparable and are to be regarded as rough approximations of per capita net national product at factor cost.

Estimates for Pakistan

When Pakistan came into being on August 14, 1947, hardly any data were available for the provinces which comprised the new State. The inadequacy of data was further accentuated by the division of Punjab and Bengal and the large-scale movement of refugees both in and out of Pakistan. To take stock of the economic position, one of the first tasks to which the statisticians addressed themselves was to compile national-income estimates for 1948/49, the first complete year after the establishment of Pakistan. The estimates for 1948/49 (April-March) were prepared by the Office of Economic Advisor, Ministry of Economic Affairs, under severe handicaps imposed by the paucity of data. In order to cover the gaps in statistical data, a number of expedients and assumptions were used[1].

When the Central Statistical Office (CSO) was set up in 1950, it established a separate division to prepare national-income estimates which were urgently required for the preparation of economic development plans in Pakistan. This division revised the national-income estimates for 1948/49 and has since been issuing income estimates on a yearly basis. Upto 1953/54, these estimates were prepared both at constant and current prices but due to the lack of regular price data, the current price series were discontinued, and until 1963 only the constant price series were published. These series were presented in a single table showing national product by industrial origin at factor costs of 1949/50 to 1952/53. The average prices of these four years were used to eliminate the wide fluctuations in prices which were witnessed during the Korean boom and the recession which followed in its wake.

In 1961, the Central Statistical Office appointed a committee of economists and statistician to review the progress of national-income estimation in Pakistan and to assist in developing a programme for the improvement of national accounting. The committee submitted its report in July 1962. Its main recommendations were that national accounts should contain separate estimates for each province and that estimates should be presented in both current and constant prices. It emphasized the need for an integrated set of national accounts in accordance with the United Nations' recommendations [9]. Accordingly, the Central Statistical Office undertook a preliminary revision of its national-income estimates for Pakistan following, as far as possible, the concepts and sector classification recommended by the United Nations Statistical Office.

With the quickening pace of economic development in Pakistan, a great need was felt for preparing the estimates of per capita income for each

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1For a detailed description of methodology of these estimates, *see* [8].

province and for areas within the provinces so that measures could be taken to stimulate and sustain economic growth in all parts of the country on an equitable basis[2]. There was also a need for examining the available data and to chalk out a more detailed programme for future work. In April 1963, the President appointed a National Income Commission with the following terms of reference:

i) to examine the available data and the requirements for compilation of national-income accounts;

ii) to recommend ways and means of collection of accurate and fuller data required for preparation of national-income statistics;

iii) to report on suitable classifications under which national-income statistics should be prepared, keeping in view particularly the need for separate statistics for the two provinces and for areas in different stages of development within the provinces so as to assist the National Economic Council in fulfilling the obligations placed on it under Article 145 (4) of the Constitution;

iv) to recommend lines of guidance to the Central Statistical Organ-ization for setting up national accounts procedures;

v) to make recommendations regarding promotion of research in the field of national-income statistics.

The Commission submitted an *Interim Report* in September 1964 [11] which contains an evaluation of the basic data used by the Central Statistical Office in its national-income estimates. The Commission also provided guidance to the Central Statistical Office for preparing revised estimates of national and provincial income for the years 1959/60 to 1963/64. While the Commission was able to improve the previous estimates in various important respects, it still had to use a number of assumptions and expedients to fill in the gaps in statistical information. Thus, one of the most important results of the Commission's work was to point out the deficiencies in the available data and the need for improvements.

In order to get comparable estimates for previous years, the Central Statistical Office has now also revised its estimates of Pakistan's national income for the years 1949/50 to 1958/59. On the basis of the data available in that office, we have estimated provincial products for East and West

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[2]The Constitution of Pakistan contains clauses which make it obligatory for the State to make efforts for the removal of economic disparity between East and West Pakistan and also between the different regions in each province.

Pakistan for the years 1949/50 to 1958/59. These estimates for the provinces and for the country are shown in Appendix Tables A-2, A-3 and A-4. A few differences in the estimates prepared by us and the official estimates may be noted. In the official estimates, value added arising in banking and insurance, central government, Pakistan International Airlines (PIA) and net factor income from abroad has not been allocated to the provinces. This un-allocated part constitutes about 3 per cent of gross national product. A number of difficulties have been faced in allocating the product of these sectors between the two provinces. The headquarters of the Central Government, most of the banks and insurance companies as well as that of PIA are located in West Pakistan but their field of operation covers the entire country. A regional or provincial breakdown of their activities is not available. Under the circumstances, we have arbitrarily allocated the value added in these sectors in a ratio of fifty-fifty to the provinces. We are aware that objections can be raised against this arbitrary division of value added in the specified sectors. But we believe that for the results of our analysis, it does not make any appreciable difference if the ratio used throughout the period was slightly biased in favour of one or the other province.

Apart from the allocation mentioned above and a few other minor corrections, the figures in our tables are in accord with those published by the Central Statistical Office [18, December 1965] and the National Income Commission [11]. The provincial tables for 1949/50 to 1958/59 are being presented here for the first time.

II. THE CONCEPTUAL FRAMEWORK

The basic concepts used in preparing the national-product estimates are in accord with those recommended by the United Nations [17]. In the following paragraphs we have confined our discussion of the conceptual framework to those aspects which we think necessary for the understanding and interpretation of Pakistan's national-income estimates.

1. *Gross Domestic Product* (GDP) has been defined as gross domestic output during a year less all secondary inputs, *i.e.*, inputs of intermediate goods and services used up in the same year. These inputs are supplied from domestic stocks in existence at the beginning of the year, from imports during the year, and from domestic production in the same year.

Due to the various kinds and degrees of integration of production processes, gross output for the country as a whole is not an unambiguous concept unless we introduce specific criteria for inclusion and exclusion of inter- and intra-sectoral flows of goods and services. GDP is, however,

conceptually unambiguous because of the implicit assumption that exactly the same inter- and intra-sectoral flows which are included in gross output are supposed to be included in the input flows that are deducted to get GDP.

2. *Value Coefficients:* All elements in the gross output flow as well as in the flows of secondary inputs can be identified as goods and services in physical terms. We could describe and quantify these flows by listing the goods and services they contain and attaching a quantity figure to each item. However, in order to make meaningful aggregates, we need a set of value coefficients, one for each item in the flows of goods and services. Logically, we have complete freedom with regard to the choice of value coefficients. It cannot be said that one set is wrong and another is right. But one set might be more relevant than another set for some specific purpose. One possible set is current market prices. A second one is market prices for some past or succeeding period. Other possibilities are factor cost (current, past, *etc.*) defined as market prices less indirect taxes net of subsidies. Finally, we can think of a variety of "shadow prices" reflecting national, social or other preference function. Once a specific set has been chosen, it must be used consistently.

3. *Gross Value Added:* As GDP equals the difference between gross output and secondary inputs, it can also be regarded as that part of the gross output which has been created by the primary inputs, *i.e.*, by labour and capital employed in the country. It is the gross value which has been added by labour and capital measured at market price, factor cost or other prices.

4. *Gross Factor Income:* The GDP estimates for Pakistan are at *factor cost.* GDP, or the gross value added by the primary factors, *i.e.* labour and capital, is, thus, identical with their gross incomes and it is, therefore, also called gross factor income.

5. *Gross National Product:* Part of GDP is created by primary factor services rendered by foreign suppliers, and a corresponding part of the factor income accrues to them. On the other hand, because of a flow of factor services also in the opposite direction, Pakistan gets factor income from abroad. By adjusting GDP for these external flows of factor income by subtracting the outward flow and adding the inward flow, we get gross national product (GNP).

6. *Net Domestic and National Product:* If *depreciation* of fixed assets during the year is deducted from GDP and from GNP, we are left with the flows known as net domestic product (NDP) and net national product (NNP).

7. *(Net) National Income:* GNP/NNP at factor cost is the gross net reward to the labour and capital belonging to the country. Gross means inclusive and net means exclusive of depreciation. NNP is identical with the net national income of the country.

8. *Factor Cost vs. Market Price:* The factor cost concepts require clear criteria for the distinction between indirect and direct taxes as well as between subsidies and direct government grants, since GDP, GNP, *etc.*, at factor cost exclude indirect but not direct taxes. The market-price concepts do not call for any such criteria, as they include indirect as well as direct taxes and exclude subsidies as well as other government grants.

9. *Sector Accounts:* The various definitions stated in the preceding paragraphs can be applied not only to the country as a whole but to any sector of the economy, no matter whether the criteria for the sector specifications are regions, industries, social groups or anything else. In the case of sector accounts/product, everything outside the sector will be the rest of the world in relation to that sector. All transactions with other sectors as well as with foreign countries will be external in relation to the sector under consideration. Thus, we can study each sector separately, leaving out in turn all the other sectors of the economy.

The gross- and net domestic-product estimates for Pakistan for 1949/50 to 1963/64 are worked out by sectors of origin for each of the two provinces. The industrial sector specification is also in accordance with the UN standard classification.

10. *Methods for Measuring the Flows:* It follows from the conceptual framework that various methods can be used for measuring GDP, GNP and other related flows. In national accounts, we are concerned with the measurement of the circular flow of product, income, and expenditures. A circular flow can be measured at any point. The three methods used for measuring these flows are *i)* production, *ii)* income, and *iii)* expenditure approach. Because of the paucity of reliable data, it has not been possible to use one and the same method for estimating value added in different sectors of Pakistan's economy. It was also not possible to prepare alternative estimates by the use of these methods for cross-checking the accuracy of results.

III. THE RELIABILITY OF ESTIMATES

The measurement of national or sectoral income presupposes the availability of adequate and reasonably accurate empirical data. It is true that even in the most advanced countries, all the required data may not be

collected according to the specifications and needs of the national-income estimator and some parts of the accounts may have to be based on indirect evidence. But in the case of Pakistan, the paucity of basic data imposes serious limitations on the accuracy of national-income estimates. Relatively, few economic data are collected and these too become available only after a considerable lapse of time. The accuracy of data varies from one province to the other and also from year to year. Under the circumstances, the methods of income estimation have been necessarily governed by the availability of economic data. While the general lack of data may continue for some time to come because of the fact that the collection of statistics is a time-consuming process, it is heartening to note that efforts are already underway to widen the coverage of statistics both in content and in space. The National Income Commission deserves full credit for pointedly drawing attention to the existing gaps in the presently available data. A few of the major weaknesses of the available data are briefly discussed below.

Estimates of Population

Reliable statistics of human population and its occupational distribution are one of the major requirements for preparing reasonably accurate national accounts. Besides using them as denominator for computing per capita income, the growth rate of population has been used in some sectors for estimating their contribution to national income. For example, in East Pakistan, estimates of production of fish are derived from estimated per capita consumption multiplied by the total population and adjusted for imports and exports. Unfortunately, the accuracy of the existing estimates of population based on the Census of 1961 is controversial. According to this census, the total population of the country stood at 93.72 million in 1961, of which 50.84 million were enumerated in East and 42.88 in West Pakistan. The average rate of annual increase was estimated at 2.15 per cent for Pakistan, 2.36 per cent for West and 1.91 per cent for East Pakistan. The Planning Commission [5] has, however, adjusted these figures upward by 8.25 per cent for underenumeration in 1961 Census. According to these figures, the total population of the country stood at 101.45 million in 1960/61, of which 55.25 million were in East and 46.20 million in West Pakistan. The rates of population growth in East and West Pakistan have been revised upward to 2.6 per cent per year. There were reasons to believe that the rate of population growth may have been much lower in the earlier years of the preceding decade than in the latter years. This hypothesis was supported by the evidence collected by the Pakistan Institute of Development Economics and the Central Statistical Office for their project on the estimation of population growth.

While the total population has been adjusted upward, a corresponding

adjustment has not been made in the occupational distribution of the population because it is hard to believe that all occupations have been evenly underenumerated. As a result, the rates of growth of persons employed in different occupations have become suspect. The rates of growth depicted by different occupations worked out from the censuses of 1951 and 1961 show a good deal of divergence from those obtained from the manpower surveys carried out by the Ministry of Labour [10].

Agricultural Sector

In its estimation of agricultural income, CSO has used official data of crop production and prices. The Ministry of Agriculture issues regular estimates of crop production for 14 major and 9 minor crops[3]. The method of crop estimation is based, more or less, on personal appraisal of the crop by the revenue and agricultural officials. The total production of a crop is worked out according to the following formula:

Production = crop area × normal yield × seasonal condition factor

Of the above factors, the data on crop area are collected quite accurately. The "normal" yield represents the average yield in a five-year period, as determined by official crop-cutting experiments conducted on fields of average fertility. The "average field" is selected purposely. The normal yield estimates are based on only a few experiments and their reliability is not known. The normal yield term is, therefore, subject to a large and unknown error.

The seasonal condition factor is an index which relates the yield in the current year to the historical average for the area. It is subjectively estimated by the revenue and agricultural officers who rely on their own impressions and their talks with the farmers.

In West Pakistan, Dr. D. M. Qureshi has carried out a number of crop-cutting experiments based on probability sampling for wheat and cotton [14]. A comparison of these results with the official estimates shows that the latter have generally underestimated the yields by 10 to 15 per cent. Another significant fact emerging from this comparison is that the official estimates generally overstate production in a poor crop year and understate the same in a very favourable year [2].

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[3]The distinction between major and minor crops is based on their respective economic importance, more important ones are called major crops and the other minor crops. The major crops are:

1) rice, 2) wheat, 3) barley, 4) *bajra*, 5) *jowar*, 6) maize, 7) gram, 8) sugarcane, 9) jute, 10) cotton, 11) tea, 12) rape and mustard, 13) sesamum, and 14) tobacco. This distinction is already outdated as some of the crops at present classified as minor like potatoes, fruits and vegetables, *etc.*, have become more important in monetary value than some of the major crops like barley or *bajra*.

Value Added in Livestock Subsector

The available data on livestock and livestock products suffer from a number of shortcomings. These data are primarily based on the livestock censuses of 1945 and 1955. Though the Census of 1945 was held in the provinces now comprising Pakistan, the movement of livestock between India and Pakistan during 1947 was not recorded. As such, the data based on this census may not be wholly correct. The first post-Partition livestock census in Pakistan was due in 1950 but was not conducted until 1955. The 1955 Census was confined to West Pakistan omitting Karachi. The next livestock census was due in 1960 but was not carried out as a separate census in that year as it coincided with the programme of the 1960 Census of Agriculture wherein the requisite information was proposed to be collected. The Agricultural Census of 1960 was carried out on a sample basis. After preliminary tabulation of the sample results, it was found that a substantial underenumeration had occurred in the case of livestock. To correct this, correction factors called "ratio estimates" based on the relationship of total acreage to enumerated acreage in each district were applied to obtain the desired coverage. Since the relationship between the acreage and live-stock is not necessarily invariant, the application of ratio estimates has probably led to an overestimation of livestock [3 ; 4].

The official estimates of livestock products also show wide variations from year to year both in East and West Pakistan. In some cases like the output of meat and hides and skins, the annual rates of growth do not show any reasonable relationship. Similarly, the production of milk has been estimated by applying very high yield rates and long lactation periods[4].

Another limitation of the estimates of value added in this subsector should be noted. The Central Statistical Office has made no adjustment for the increase in the livestock population as reliable data on the rate of their growth are not available. Since there are reasons to believe that livestock products have been overestimated, this omission may bring the figures of value added in this subsector closer to reality.

Fishing and Forestry

The value added in this subsector has been worked out by the use of production method for West Pakistan and consumption approach for East Pakistan. The available estimates of per capita consumption in East Pakistan show wide divergence. According to the *Fish and Meat Consumption*

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[4]In West Pakistan, the daily yield of cow and buffalo milk has been taken at 3.64 seers while in East Pakistan these have been taken to be 0.94 seers and 1.81 seers. The lactation period in West Pakistan is taken at 300 days for cow and 330 days for buffaloes. The corresponding periods for East Pakistan are 210 and 240 days.

Survey, 1961/62, it was 12.5 seers (one seer is approximately 2.2 lbs.) in rural areas. The National Sample Survey of 1961 yields a figure of 14.4 seers and the Nutrition Survey of 1962 gives a figure of 17.2 seers. The CSO has accepted the results of the Nutrition Survey as the quantities consumed by the sample households were actually weighed by the staff in this survey.

The value and output of forest products are compiled by official agencies. These data pertain to the production of "forest areas" only. To account for production in "nonforest" areas, suitable adjustments were made.

Mining and Quarrying

The estimates for value added in mining are fairly reliable. At present, there appears to be a serious underestimation in the case of value added in quarrying because of the lack of data on removal of sand and stone from private quarries. The total value added in this sector constitutes only a very small percentage of the national income and as such even a serious omission may not affect the total income in any appreciable manner.

Manufacturing Sector

This sector is subdivided into large-scale and small-scale manufacturing. Large-scale industry covers all factories registered under Section 2(j) of the Factories Act, 1934. All manufacturing establishments employing twenty or more workers on any day during the twelve months preceding the Census of Manufacturing Industries and using power in manufacturing process are registered under this section. Small-scale industry includes all manufacturing establishments not covered by Section 2(j) of the above Act. Since the definition of large-scale industry leaves out an important section of manufacturing establishments from the Census of Manufacturing, attempts have been made to extend the census to cover medium-scale industries which come under the jurisdiction of Section 5(i) of the Factories Act, 1934, *i.e.*, factories employing ten or more workers with or without power [7].

The above distinction between various types of industry is based mainly on labour considerations. In recent years, the scope of small-scale industry has been redefined by the provincial governments. According to the East Pakistan Small Industries Corporation Act of 1957, a small industry means an industrial establishment or unit which is run mainly by hired labour and not using mechanical motive power for any operation, or an industrial establishment or unit using mechanical motive power but not normally employing more than 50 workmen and whose land, building and

machinery do not exceed 2,50,000 rupees in value [1]. In West Pakistan, according to a recent amendment in the Provincial Industrial Development Corporation Act, small industry has been defined as an industry engaged in the handicraft or the manufacture of consumer or producer goods wherein *a*) motive power is not used, or *b*) motive power is used but the value of land, building and machinery does not exceed 2,00,000 rupees. The definitions of small-scale industry in the two provinces are not similar and also overlap with Section 2 (j) of the Factories Act. As a result, the coverage of manufacturing firms in the recent provincial surveys is not comparable.

The estimates of value added in large-scale industry are based on the periodic Censuses of Manufacturing Industry (CMI). The results of these censuses are vitiated by underreporting and nonresponse. A study by the CSO showed that the total value added in large-scale industry in the Census of Manufacturing Industry of 1959/60 was understated to the extent of 9.5 per cent in East Pakistan and 5.8 per cent in West Pakistan. In a survey of industrial units in 1960 and 1961, Papanek found a tendency on the part of respondents to overstate total capital costs and understate output presumably because of the tax considerations [13].

Many of the products of large-scale industry are subject to excise taxation. As such, the Central Board of Revenue (CBR) also maintains production statistics of these products. A comparison of the CBR data with those of CMI showed that the latter grossly underreported production of sugar, tea, tobacco products and cotton textiles among others in East Pakistan in 1959/60 and 1962/63. When Tims applied these corrections, he found that value added in large-scale industry in East Pakistan was underestimated by about 24 per cent in 1959/60 and by 7 per cent in 1962/63 [16].

Construction

Because of the paucity of data, estimates of value added in this sector are admittedly weak. A few studies of the cost of construction in urban areas showed that cement input constituted 10 per cent of the total cost and the value added came to 40 per cent of the total cost of construction. For rural housing, the ratio of value added to total costs was taken to be 20 per cent in East and 50 per cent in West Pakistan. The number of new houses built each year was based on the rate of growth witnessed during the 1950 and 1960 Housing Censuses and may well be an underestimate like the population censuses. This method ignores all types of construction except the Rural Works Programme wherein cement is either not used or used to a negligible extent.

Electricity, Gas, Water and Sanitary Services

These services are supplied by public-owned companies, Water and Power Development Authorities and local bodies. Their budgets are available and the estimates of value added in this sector are based on reliable data.

Banking, Insurance and Public Administration Sectors

The NIC faced a few minor problems in estimating value added in these sectors. for example, recent data were lacking in respect of local bodies and cooperative societies and previous wage-income ratios had to be used for estimating total wage payments for some years. This, however, constituted an insignificant part of the total. On the whole, the estimates are highly reliable.

Transportation and Communication

The estimates of value added in transport and communication services provided by the public sector such as port trusts, railways, posts and telegraph, airways and public-owned bus companies are based on their budgets and are reliable. The estimates for international and coastal shipping, privately owned bus and steamer companies are also based on, more or less, adequate data. The weakest link are the estimates for nonmechanised transport including country boats which abound in East Pakistan, animal-drawn vehicles, rickshaws and other like means of transport. Of these, estimates for value added in country boats are based on a sample survey carried out by the Inland Water Transport Authority of East Pakistan. The importance of country boats as a means of transport in East Pakistan is evident from the fact that of the total value added in this sector in that province, almost half is contributed by these boats.

Wholesale and Retail Trade

The value added in distributive trade is measured by the trade margins earned by traders on the quantum of goods entering into trade channels. In the NIC estimates, the former was based on a special survey carried out to determine these margins and checked against existing information of the subject. The quantum of goods entering into trade was ascertained from various marketing reports and surveys. In the case of import trade on private account, it was assumed that capital goods and industrial raw materials are imported directly by the users and only the consumer goods are imported through trade channels. This assumption does not appear to be valid and is not in conformity with existing practices. It is doubtful whether a survey

is a suitable method for collecting information on trade margins which is generally treated as a closely guarded trade secret in a market characterised by a scarcity of imported goods.

Ownership of Dwellings

The benchmark data for occupied houses in urban and rural areas are based on Housing Censuses of 1950 and 1960. The gross rentals per household are obtained from the National Sample Surveys on Family Expenditures. The reliability of these estimates is closely linked with the degree of accuracy of the benchmark data. It is generally believed that the census of housing has a similar downward bias as the census of population. The rates of depreciation adopted for working out net value added are more or less arbitrary.

Services

The estimates of value added in this sector are based on income and, in a few cases, on expenditure approach. The number of persons engaged in different occupations were obtained from the Population Census of 1961. The intercensal rate of increase of the labour force engaged in this sector worked out to be 3 per cent for East and 4 per cent for West Pakistan. This rate was used for extrapolating the total value added for post-census years.

The rate of growth used in the estimates is obviously on the low side. In the case of medical and health workers, the data maintained by the Ministry of Health show an annual rate of growth of 11 per cent in East and 11.5 per cent in West Pakistan. The available evidence from other independent sources also shows that the rate of growth of teachers, legal practitioners, auditors and accountants, *etc.*, has been much higher than the one worked out from the population censuses.

The composition of services sector is likely to undergo considerable change during the process of economic growth. Because of the enhanced opportunities of employment and increased rate of literacy, inter- and intra-occupational mobility becomes easier. The Census of 1961 shows a decrease in the number of domestic servants compared with 1951 which indicates a vertical movement in some of the occupations included in this sector.

In summary, the largest part of GDP has been derived from data on gross output and intermediate goods and services. The production approach, sometimes called an input-output approach, has been used for agriculture, mining, large-scale manufacturing and for parts of the electricity-producing sector. For the subsistence part of agricultural sector, value

has been imputed on the same basis as the marketed part. In cases where actual data on inputs were not available, input coefficients based on various pieces of information or borrowed from other countries have been applied. The income approach was used for banking and insurance, public administration and defence and substantial parts of transport and services sectors. The expenditure approach was utilised in the fisheries subsector in East Pakistan where output estimates were based on consumption and exports of fish. The consumers' expenditure also served as the basis for estimating gross rentals arising in the sector ownership of dwellings. Finally, this method was used for a smaller part of the services sector.

Depreciation of fixed assets was estimated for each sector as a percentage of gross value added. As there is no real basis for estimating depreciation rates, the estimates of net domestic product or net value added are more arbitrary than the gross estimates.

Benchmark Growth Rates: For some of the sectors the estimates have been worked out independently for each year along the lines described in the preceding paragraphs. This is the case for major crops and minor crops, forestry, mining, electricity, *etc.*, and for parts of some other sectors. But in other cases, independent estimates have been prepared only for a few years, for some sectors for only one year. The estimates for that particular year have been used as benchmarks and estimates for other years obtained by applying production indices, population growth rates, trends based on two or more benchmark years, *etc.* Therefore, the growth rates that can be derived from the estimates depend heavily on the reliability as well as on the relevance of those indices.

IV. TRENDS AND FLUCTUATIONS

The following analysis is confined to gross national, provincial and sector products at constant (1959/60) factor cost[5]. Some of the main characteristics of the time series are:

i) Heavy fluctuations in the product of agricultural sector, particularly in East Pakistan. As agriculture has a relatively higher weight in provincial product of East than in West Pakistan, the fluctuations in the GPP are also much more pronounced in East Pakistan.

ii) For the period 1949/50 to 1963/64 as a whole all sector products show an upward trend. This is also the case for any five-year period, no matter from which year we start. The only exception is the agricultural

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[5] *See*, Appendix Tables A-2, A-3 and A-4.

sector in East Pakistan for which five-year periods of stagnation or even decline can be pointed out.

iii) The upward trends became much steeper after 1959/60, or rather after 1958/59 in East Pakistan. We prefer to use 1959/60 as a base year because it is commonly used for this purpose for the Second Five-Year Plan, 1960-65. The agricultural output in East Pakistan in 1958/59 was exceptionally low and the use of this year as a base would distort the subsequent growth rates.

iv) A clear structural change in favour of nonagricultural sectors. Though structural changes have taken place also within agricultural sector, these are more pronounced in the case of nonagricultural sectors such as large-scale manufacturing.

Growth Patterns

In the foregoing paragraph, the term trend was used in a rather loose way. It needs some clarification and formalization before it can be expressed in quantitative or graphic terms.

A trend is a normalized time series constructed by smoothing out the actual series so that it fits into one or another simplified growth pattern or model. The first step in the construction of a trend is, therefore, to decide about the growth pattern and thereby to choose the formulas to be used for the trend computations. Each formula (or set of formulas) corresponds to only one specific growth pattern which is reflected in the shape of the trend.

The following types of trends may have more or less relevance to the gross domestic and sector product estimates for Pakistan:

a) *A Constant Growth Per Year in Absolute Terms:* The trend value grows by the same absolute amount each year which gives a simple *linear trend.* This pattern is described by a linear equation (*see,* Appendix C).

b) *A Constant Annual Compound Growth Rate:* The trend value grows by the same percentage from one year to the next throughout the period. We get a certain type of exponential trend, the pattern can be expressed by an exponential equation. As explained in Appendix C, it can, however, be transformed to a linear trend in the logarithmic form. For the sake of convenience, we will call it a *semilogarithmic trend.*

c) *An Accelerating Growth or an Increasing Annual Compound Growth Rate:* The acceleration, *i.e.,* relative increase in the growth rate may be

constant, increasing or declining, but the growth rate itself would be continuously increasing if the acceleration is positive. If the acceleration is declining, we gradually approach a trend characterized by a constant rate (type *b*) which is in fact a special case of type *c*) where the acceleration is zero. The acceleration may be negative, which means a retarding growth due to a declining annual compound growth rate. Type *a*), the linear trend, represents a special case of retarding growth. When the yearly growth is constant in absolute terms, the growth rate is declining but the retardation — the relative decrease in the growth rate — becomes smaller year by year.

If we work out sectorwise trends and aggregate them, the growth pattern of the aggregate may or may not follow any of the patterns of its component. It may even not represent any of the types of trends listed above. The following case is of special interest for our trend computations:

In the case of semilogarithmic sectoral trends, if the sectors grow at a constant and equal rate, the aggregate growth rate will be identical with the sectoral growth rate. However, constant but unequal sectoral growth rates will lead to acceleration in the aggregate growth rate. The obvious reason for the acceleration of the growth in the aggregate is that the sectors with higher growth rates (higher than the weighted average growth rates for all sectors) increase their relative weights year by year. This will be so regardless of which set of weights we start with. If we continue the trends infinitely, we approach a growth rate for the aggregate equal to the constant growth rate of the fastest growing sector. The acceleration will eventually come down to zero. But it does not necessarily decline continuously. It may even increase over longer periods, depending on the sectoral growth rates and the relative weights[6].

If we assume constant growth rates for each sector, then the rate of acceleration of the growth in the aggregate would depend on the degree of disaggregation of sectors. If we, on the other hand, lump all sectors together and assume a constant growth rate for the aggregate (a semilog trend), then the implicit assumption is that the specified sectors on the average grow at more or less declining rates. It is an important point that a semilog trend for the aggregate is incompatible with a semilog trend for the sectors that make up the aggregate, if the sectors grow at different constant rates.

We should be clear, however, that no similar implication exists in the case of linear trends. The linear trend for the aggregate is just the aggregate of the linear trends for the components.

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[6] A mathematical exposition of aggregate growth and acceleration in the two-sector case is given in Appendix C.

Trends, 1949/50—1959/60

Not only the growth rates but, to some extent, also the growth patterns seem to have changed around 1959/60. We have, therefore, worked out separate trends for the periods before and after 1959/60.

For the first period, 1949/50—1959/60, the "actuals" in agriculture do not give any clear indication about the growth pattern, so the choice has to be arbitrary. In a case like that, semilogarithmic trends might be as relevant, or irrelevant, as simple linear trends. The average growth rates in agriculture over the ten-year period were so small that the difference between linear trends and semilogarithmic trends would be negligible. For the nonagriculture sector, as a whole, simple linear trends seem to fit the actual time series 1949/50—1959/60 fairly well in East as well as in West Pakistan.

It should be noted, however, that if we break down our two broad sectors into subsectors, according to the sector specification in Appendix Table B-1, we find marked differences with regard to growth patterns. For some sectors, the "actuals" themselves are in fact extrapolations or interpolations made on different assumptions about the relevant growth patterns, *e.g.*, semilog trends for small-scale manufacturing and for the main parts of services. But when we lump them together into one nonagricultural sector, a simple linear trend seems to be a workable approximation for both provinces.

Since in each province the trends for the two specified sectors, *viz.*, agriculture and nonagriculture, are linear, the aggregate trend for the provinces as well as for the country as a whole will also be linear. The appended Figures 1, 2 and 3 show the linear trends 1949/50—1959/60 together with actual estimates.

As a supplement to these figures, a few crucial trend values are shown in Tables I, II and III[7].

As far as our figures go, they tell the story about a decade of stagnation for the Pakistan economy as a whole. Gross national product per capita stayed at the same low level throughout the period. In East Pakistan, it even declined. Neither in East Pakistan nor in West Pakistan did the output in agriculture keep pace with the population growth.

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[7] As our trends are linear, the average compound rates may differ slightly from the constant growth rates which semilog trends would have shown, but the differences would in this case be negligible.

TABLE I

EAST PAKISTAN: GROSS PROVINCIAL PRODUCT AT 1959/60 FACTOR COST

	Trend value			Average annual compound rate of growth
	1949/50	1959/60	Constant annual increase	
	(......*in crores of rupees*......)			(*per cent*)
Agriculture: gross value added	835.8	879.6	4.4	0.5
Nonagriculture: gross value added	440.3	584.1	14.4	2.8
Net factor income	—1.5	—1.5	—	—
Gross provincial product	1,274.6	1,462.2	18.8	1.4
Population (*lakhs*)	422.5	538.5	—	2.4
GPP per capita (*Rs.*)	302	272	—3.0	—1.0

TABLE II

WEST PAKISTAN: GROSS PROVINCIAL PRODUCT AT 1959/60 FACTOR COST

	Trend value			Average annual compound rate of growth
	1949/50	1959/60	Constant annual increase	
	(......*in crores of rupees*......)			(*per cent*)
Agriculture: gross value added	628.7	767.3	13.9	2.0
Nonagriculture: gross value added	544.6	884.9	34.0	5.0
Net factor income	—1.5	—1.5	—	—
Gross provincial product	1,171.8	1,650.7	47.9	3.5
Population (*lakhs*)	353.1	450.3	—	2.4
GPP per capita (*Rs.*)	332	368	3.6	1.1

TABLE III

PAKISTAN: GROSS NATIONAL PRODUCT AT 1959/60 FACTOR COST

	Trend value			Average annual compound rate of growth
	1949/50	1959/60	Constant annual increase	
	(......*in crores of rupees*......)			(*per cent*)
Agriculture: gross value added	1,464.5	1,645.9	18.3	1.2
Nonagriculture: gross value added	985.2	1,469.4	48.4	4.1
Net factor income	—3.0	—3.0	—	—
Gross national product	2,446.7	3,113.3	66.7	2.4
Population (*lakhs*)	775.6	988.8	—	2.4
GNP per capita (*Rs.*)	315	315	0	0

N.B.: One crore equals ten million. One lakh equals one hundred thousand.

Trends during 1959/60 — 1963/64

Our trends for this five-year period are based on the "actuals" 1959/60—1963/64 only. Looking at the sectoral time series each of which is based on five observations, *agriculture* is again a questionable sector with regard to growth pattern. No doubt, any type of trend we might choose would give higher average annual growth rates for this period than for the period 1949/50—1959/60. But the growth pattern is still not clear. However, simple linear trends do not seem to be the most relevant trends for this period, the more so if we look at the 1959/60—1963/64 series as a continuation of the 1949/50—1959/60 series. As the growth rates in agriculture changed substantially upwards at the end of the first ten-year period, it seems unlikely that the growth pattern for the succeeding years should be one with retarding growth rates, which is the implication of a simple linear trend. Recent studies of the basic growth factors in agriculture indicate increasing growth rates for the coming years. Partly as a consequence of such studies, the Third Five-Year Plan is based on much higher expected annual growth rates in agriculture than the average annual growth rates realised during the second-five-year-plan period [12]. In order not to over-state the acceleration over the four years, 1959/60—1963/64, we have split up agriculture separately for East and West Pakistan in only two subsectors, and have chosen semilogarithmic trends for each of them. Major and minor crops have been treated as one subsector and livestock, fishing and forestry as the other.

With regard to "nonagriculture", the 1959/60—1963/64 figures indicate a development pattern completely different from that found for 1949/50—1959/60. An examination of specified sectors separately shows that the actual time series of sectors are just semilogarithmic trends with constant annual compound growth rates of 18.8 per cent for large-scale manufacturing in East Pakistan, 10.7 per cent for large-scale manufacturing in West Pakistan and 2.6 per cent for small-scale manufacturing in both provinces. This is so because the "actuals" were estimated exactly according to this growth pattern. For large-scale manufacturing, there were actual observations only for the two years, 1959/60 and 1962/63, and the other three years were extrapolated by assuming that the annual compound growth rate remained constant for the whole period. As far as the small-scale manufacturing is concerned, an estimate was made for one year from which the other years were calculated by extrapolation, assuming a constant annual compound rate equal to the assumed population growth rate of 2.6 per cent. Consequently, in both provinces, we get trends with accelerating growth rates for the aggregate manufacturing—large and small scale together, as the large-scale manufacturing with its higher growth rate increases its relative weight year by year at the expense of small-scale.

The series for most of the *other nonagriculture* sectors indicate that linear trends are out of question. Semilog trends may be a good approximation for some of these sectors, but accelerating growth seems to be more relevant for most of them. For the sake of simplicity, and also in order not to overstate the aggregate growth rates, we have chosen semilog trends for each of the specified nonagriculture sectors separately for East and West Pakistan.

As a consequence of our sectoral semilog trends, we necessarily end up with an accelerating growth pattern for each of the two provincial products as well as for the national product.

Figure 4 shows the semilog trends for the specified sectors of each of the two provinces. The numbers attached to the trends are trend values 1964/65 in per cent of trend values 1959/60. Tables IV, V and VI below give the trend values in absolute terms for 1959/60 to 1964/65. Appendix B gives the regression coefficients of our semilog trends and the corresponding growth factors. Finally, in Figures 5, 6 and 7 we have drawn the aggregate trends together with the "actuals" of the same aggregates. The results for 1959/60—1964/65, as they appear on these figures, are directly comparable with the results for 1949/50—1959/60 in Figures 1, 2 and 3.

The trends during the period 1959/60 to 1964/65 give a much more encouraging picture than the trends during the previous decade. The average compound rate of growth in GNP and per capita income works out to 5.3 and 2.7 per cent per year, respectively. This higher growth rate is reflected in value added in agricultural as well as nonagricultural sectors. The rate of growth in GNP was 5 per cent in 1960/61 when compared with the previous year. It gradually rose to 5.7 per cent in 1964/65. The average rate of growth of GPP in East Pakistan was about the same as in West Pakistan but this rate showed a higher acceleration in East than in West Pakistan.

There are pronounced differences between the growth rates of agriculture and nonagriculture sectors. The latter grew at a rate which was twice as high as that of agriculture and as such gained in relative weight year by year. Within these two broad categories, particularly within nonagricultural sectors, rates of growth showed a wide variation indicating a structural change in the composition of GNP.

Future Trends

The trend coefficients in the above discussion are based on only five observations, *i.e.*, on the data for 1949/50 to 1963/64. The actual estimates

TABLE IV

EAST PAKISTAN: TREND VALUES OF GROSS VALUE ADDED AT 1959/60 FACTOR COST

Sector	Trend values						Constant annual growth rate
	1959/60	1960/61	1961/62	1962/63	1963/64	1964/65	(per cent)
	(............................in crores of rupees............................)						
I. Agriculture	914.8	945.6	977.0	1,009.3	1,042.8	1,077.4	3.3*
Crops	715.3	740.0	765.7	792.1	819.6	848.0	3.5
Other agriculture	199.5	205.6	211.3	217.2	223.2	229.4	2.8
II. Nonagriculture	583.0	628.9	675.2	728.8	791.0	864.3	8.0*
Manufacturing, large scale	40.6	48.2	57.3	68.1	80.9	96.1	18.8
Manufacturing, small scale	50.6	51.9	53.3	54.7	56.1	57.5	2.6
Mining	—	—	—	—	—	—	—
Construction	18.5	24.9	33.3	44.8	60.1	80.6	34.2
Electricity, gas	1.6	2.3	3.5	5.1	7.6	11.3	47.9
Transport, communications	89.0	94.3	99.9	105.8	112.1	118.8	5.9
Trade	157.2	168.5	180.4	193.2	207.0	221.8	7.1
Ownership of dwellings	93.2	95.5	97.8	100.3	102.7	105.4	2.5
Services	70.0	72.1	74.2	76.4	78.7	81.0	3.0
Banking, insurance	11.2	12.3	13.5	14.8	16.3	17.9	9.8
Public administration, local	19.0	21.5	24.2	27.4	30.9	34.9	12.9
Central government and net factor income from abroad	37.1	37.4	37.8	38.2	38.6	39.0	0.9
Gross provincial product (GPP) as an aggregate of the sectors	1,502.8	1,574.5	1,652.2	1,738.1	1,833.8	1,941.7	5.3*
GPP index	100.0	104.8	109.9	115.7	122.0	129.2	—
Percentage growth in GPP from preceding year		4.8	4.9	5.2	5.5	5.9	—
Agriculture index	100.0	103.4	106.8	110.3	114.0	117.7	—
Nonagriculture index	100.0	107.0	114.8	123.9	134.5	147.0	—
Population (lakhs)	538.5	552.5	556.9	581.6	596.9	612.2	2.6
Per capita GPP (Rs.)	279	285	291	299	307	317	2.6*

*Average annual compound growth rate.

Khan and Bergan: Pakistan's National-Income Estimates

TABLE VI

PAKISTAN: TREND OF GROSS NATIONAL PRODUCT AS AN AGGREGATE OF PROVINCIAL SECTORAL SEMILOGARITHMIC TRENDS

Sector	1959/60	1960/61	1961/62	1962/63	1963/64	1964/65	Average annual compound growth rate
							(per cent)
Agriculture (in crores of rupees)	1,674.8	1,733.7	1,794.1	1,857.1	1,922.0	1,989.8	3.5
Nonagriculture (in crores of rupees)	1,460.8	1,558.9	1,667.2	1,788.4	1,923.8	2,076.7	7.3
Gross national product (GNP) (in crores of rupees)	3,135.6	3,292.6	3,461.3	3,645.5	3,845.8	4,066.5	5.3
GNP index	100.0	105.0	110.4	116.3	122.6	129.6	—
Percentage growth in GNP from preceding year		5.0	5.1	5.3	5.5	5.7	—
Agriculture index	100.0	103.5	107.1	110.9	114.8	118.8	—
Nonagriculture index	100.0	106.7	114.1	122.4	131.7	142.2	—
Population (lakhs)	988.8	1,014.5	1,040.9	1,067.9	1,095.6	1,124.1	2.6
Per capita GNP (Rs.)	317	325	333	341	351	362	2.7

Studies on National Income and its Distribution

TABLE V

WEST PAKISTAN: TREND VALUES GROSS VALUE ADDED AT 1959/60 FACTOR COST

Sector	Trend values						Constant annual growth rate
	1959/60	1960/61	1961/62	1962/63	1963/64	1964/65	(per cent)
	(·········· in crores of rupees ··········)						
I. Agriculture	760.0	788.1	817.1	847.8	879.2	912.4	3.7*
Crops	466.7	489.1	512.2	536.9	562.4	589.5	4.8
Other agriculture	293.3	299.0	304.9	310.9	316.8	322.9	2.0
II. Nonagriculture	872.8	930.0	992.0	1,059.6	1,132.8	1,212.4	6.8*
Manufacturing, large scale	115.9	128.3	142.0	157.3	174.1	192.7	10.1
Manufacturing, small scale	85.9	88.2	90.5	92.9	95.3	97.7	2.6
Mining	7.2	7.9	8.7	9.5	10.5	11.5	9.9
Construction	46.6	53.9	62.3	72.0	83.3	96.3	15.6
Electricity, gas	8.5	9.6	10.8	12.2	13.7	15.4	12.7
Transport, communications	94.3	99.6	105.1	111.0	117.2	123.8	5.5
Trade	202.9	218.2	234.7	252.4	271.8	291.8	7.5
Ownership and dwellings	83.4	86.1	88.9	91.8	94.8	97.9	3.3
Services	141.4	147.3	153.5	160.0	166.7	173.7	4.2
Banking, insurance	11.2	12.3	13.5	14.8	16.3	17.9	9.8
Public administration, local	38.4	41.2	44.2	47.5	50.9	54.7	7.3
Central government and net factor income from abroad	37.1	37.4	37.8	38.2	38.6	39.0	0.9
Gross provincial product (GPP) as an aggregate of the sectors	1,632.8	1,718.1	1,809.1	1,907.4	2,012.0	2,124.8	5.4*
GPP index	100.0	105.2	110.8	116.8	123.2	130.1	—
Percentage growth in GPP from preceding year		5.2	5.3	5.4	5.5	5.6	—
Agriculture index	100.0	103.7	107.5	111.6	115.7	120.0	—
Nonagriculture index	100.0	106.6	113.7	121.4	129.8	138.9	—
Population (lakhs)	450.3	462.0	474.0	486.3	498.9	511.9	2.6
Per capita GPP (Rs.)	363	372	382	392	403	415	2.7*

*Average annual compound growth rate.

are subject to considerable margin of error and the trends derived from them must be regarded as rough approximations. In spite of these limitations, we have computed trend values for 1964/65. The assumption that the growth pattern and factors which characterize a past period will continue into the future becomes unrealistic if we move too far ahead in time. This is all the more true in a planned developing economy like Pakistan where any forecast based on an extrapolation of past trends may be wide off the mark.

Nonetheless, we have not been able to resist the temptation to compute the growth in GNP during the Third Five-Year Plan (1965-70). This exercise is based on the assumption that the trends during 1959/60 to 1964/65 will remain unchanged. An extrapolation of GNP over the five years, 1964/65 to 1969/70, shows a total growth of about 39 per cent which corresponds to an average annual compound rate of 6.8 per cent. Similar extrapolation of East Pakistan's GPP shows 45 per cent growth over the third-plan period which is equivalent to an average annual compound rate of 7.7 per cent. For West Pakistan, the corresponding figures are 34 per cent for Plan period and 6 per cent per year.

The third-plan target for growth in Pakistan's GNP is 6.5 per cent per year which is quite close to our figures. Similarly, the Plan targets for West Pakistan's GPP are almost the same as the figures we got by extrapolation of trend. In the case of East Pakistan, the Plan target for 40 per cent growth in GPP is lower than the extrapolated trend (7 per cent per year) figure of 45 per cent.

However, when we look at the two broad sectors, *viz.*, agriculture and nonagriculture, separately, we get a different picture. The third-plan targets for growth in agriculture are 4.5 per cent in East and 5.5 per cent in West Pakistan, giving an aggregate rate of 5 per cent per year for the country as a whole. Against these planned rates of growth, the trend values were 3.3 per cent in East and 3.7 per cent in West Pakistan. If we combine the third-plan targets for agriculture with our trend rates for nonagriculture, we get a much higher growth rate for GNP and GPP of East and West Pakistan than envisaged in the Third Plan. The purpose of this comparison was to point out the Third Plan's implicit assumption that the annual growth rates in a number of nonagricultural sectors are going to decline substantially during the next five years.

V. STRUCTURAL CHANGE IN THE ECONOMY

A relative sectoral distribution of the trend values of gross provincial and national products is shown in Table VII below. The two major sec-

tors in which these values have been divided are agriculture and nonagriculture. The latter has been subdivided into commodity-producing and service-producing subsectors.

The distribution of relative figures shown in the table depends on the price structure in the base year 1959/60. If a base year was chosen wherein the prices of agricultural products were relatively higher, the share of agriculture would have been higher. However, the structural change in the gross provincial and national products is so pronounced that it would have appeared regardless of the year which we chose as base for prices.

TABLE VII

RELATIVE SECTORAL DISTRIBUTION OF THE TREND VALUES OF GNP AND GPPs

Region	Agriculture	Nonagriculture			GNP/GPP
		Total	Commodity-producing sectors[1]	Service-producing sectors[2]	
East Pakistan					
1949/50	65.6	34.4			100
1954/55	62.7	37.3			100
1959/60[3]	60.2	39.8			100
1959/60[4]	60.9	39.1	(7.4)	(31.7)	100
1964/65	55.5	44.5	(12.6)	(31.9)	100
West Pakistan					
1949/50	53.6	46.4			100
1954/55	49.5	50.5			100
1959/60[3]	46.5	53.5			100
1959/60[4]	46.5	53.5	(16.2)	(37.3)	100
1964/65	42.9	57.1	(19.5)	(37.6)	100
Pakistan					
1949/50	59.9	40.1			100
1954/55	56.0	44.0			100
1959/60[3]	52.9	47.1			100
1959/60[4]	53.4	46.6	(12.0)	(34.6)	100
1964/65	48.9	51.1	(16.2)	(34.9)	100

[1]Includes manufacturing, mining, construction, electricity, gas and water.

[2]Includes transport, trade, dwellings, services, banking and insurance, public administration, Central Government.

[3]Derived from trend exhibited during 1949/50 to 1959/60.

[4]Derived from trend during 1959/60 to 1964/65. As the two trends were calculated separately, they do not necessarily give the same result for the common year 1959/60.

During the past 15 years, agriculture's contribution to GNP has gradually decreased from 60 to 49 per cent. A similar pattern is evident in the provinces. In East Pakistan, agriculture's share decreased from 66 to 56 per cent and in West Pakistan from 54 to 43 per cent.

Another interesting aspect of the change in structure is that the commodity-producing sectors in nonagriculture category have increased their share by almost the same percentage points as the decrease in agriculture's share during the second-plan period. In other words, the service-producing sectors have been able to keep their share unchanged during this period. East and West Pakistan have these characteristics in common which underlie the fact that nonagricultural commodity-producing sectors have played a leading role in the economic development of both provinces.

Comparison of Per Capita Income in East and West Pakistan

We have already referred to the constitutional requirement of the removal of disparity in per capita income between the provinces and different regions within each province. To fulfil this requirement, it is necessary to compare the behaviour of regional products and per capita income over the past years. For several reasons, a comparison of this kind between East and West Pakistan is particularly difficult.

The structures of the two provincial economies are distinclty different. The data on which these estimates are based differ in their reliability from sector to sector, province to province and from year to year. Moreover, the rupee may have a different purchasing power in the two provinces. A detailed discussion of these problems is beyond the scope of this paper. These have been dealt with briefly in the *Interim Report* of the National Income Commission [11]. Suffice it to say here that too firm conclusions should not be drawn on the basis of Table VIII below which compares the per capita income of the two provinces.

TABLE VIII

TREND VALUES OF PER CAPITA GPP AT 1959/60 FACTOR COST

	1949/50	1954/55	1959/60*	1959/60**	1964/65
East Pakistan as per cent of West Pakistan's per capita GPP	90.9	81.0	73.8	76.9	76.4
West Pakistan as per cent of East Pakistan's per capita GPP	110.0	123.4	135.5	130.1	130.9

*Derived from 1949/50—1959/60 trend.
**Derived from 1959/60—1964/65 trend.

For 1959/60, two sets of figures have been shown in the above table. These are based on two different trends. For studying the change in disparity over time, the first figure for 1959/60 should be used when comparing with preceding years and the second set when comparing with succeeding years. The table shows that the disparity between the two provinces increased during the decade 1949/50 to 1959/60 but has remained almost constant over the last five years. The figures can be interpreted to indicate that by the end of Second Plan, East Pakistan lagged ten years behind West Pakistan. With a growth rate of 2.7 per cent per year in GPP, it would take East Pakistan ten more years to reach the 1964/65 level of per capita GPP of West Pakistan. This calculation has nothing to do with the question when the disparity will be removed. That is a problem of future growth rates in East and West Pakistan.

Before we leave Table VIII, it should be mentioned that the way in which we have measured the disparity implies that the level of disparity as well as the change over time depends on the base-year prices. The composition of East Pakistan's GPP is different from that of West Pakistan and the prices of the various components do not move proportionately. Sometimes they even move in opposite directions. Again, the price movements for the same goods are not always the same in the two provinces, becuase most of their products are not sold in the same markets. It is an open question whether GPP at constant prices or at current prices is the most relevant concept for measuring the provincial disparity in income. If we could postulate that a rupee in East at any time had the same purchasing power as a rupee in West Pakistan, it could be argued that GPP at current prices would be a more relevant concept for this purpose. However, regardless of which of the conceivable set of prices we choose for our comparison, the outcome is likely to confirm the extent of disparity between the provinces.

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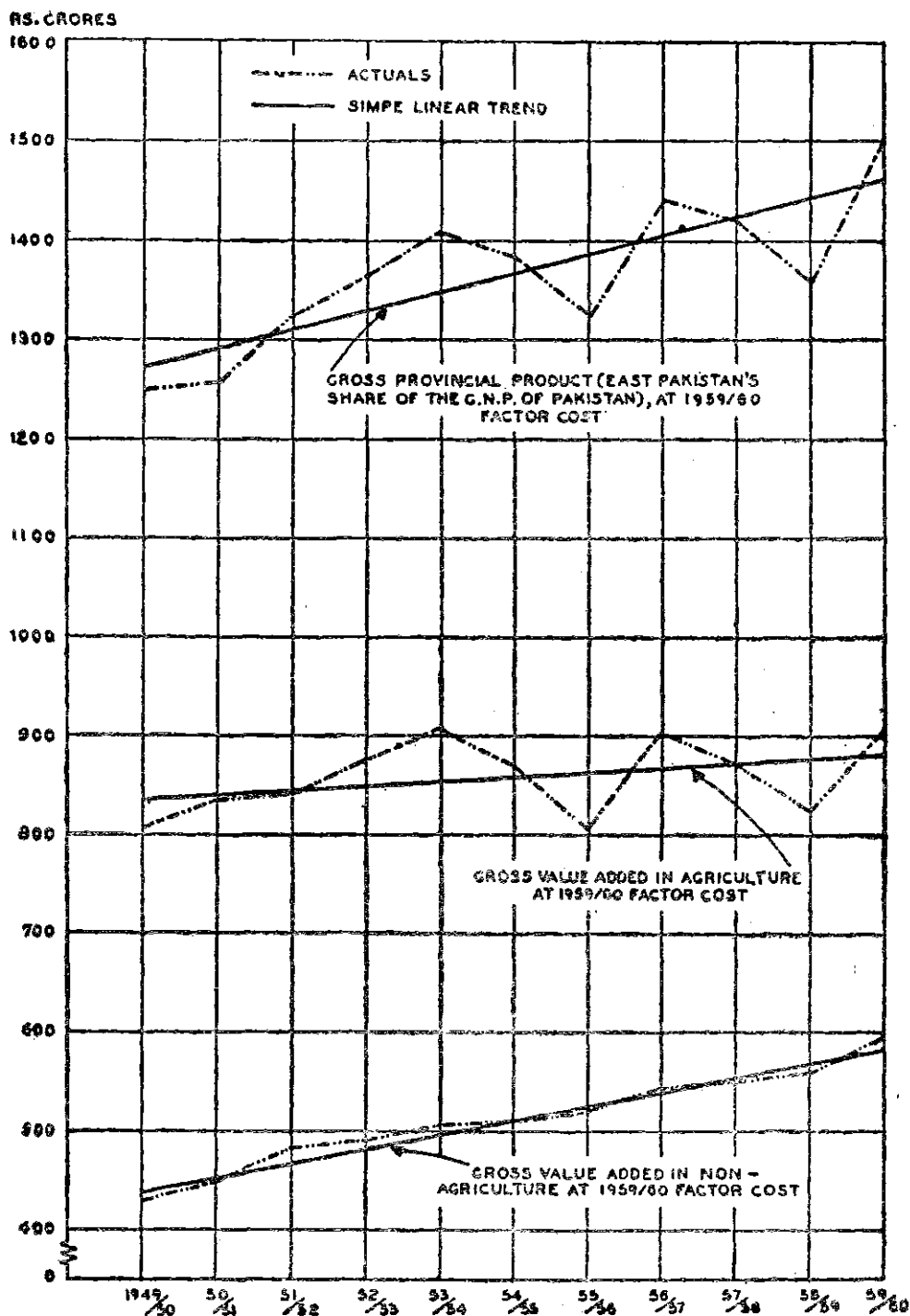
Figure 1. Gross Provincial Product of East Pakistan at 1959/60 Factor Cost
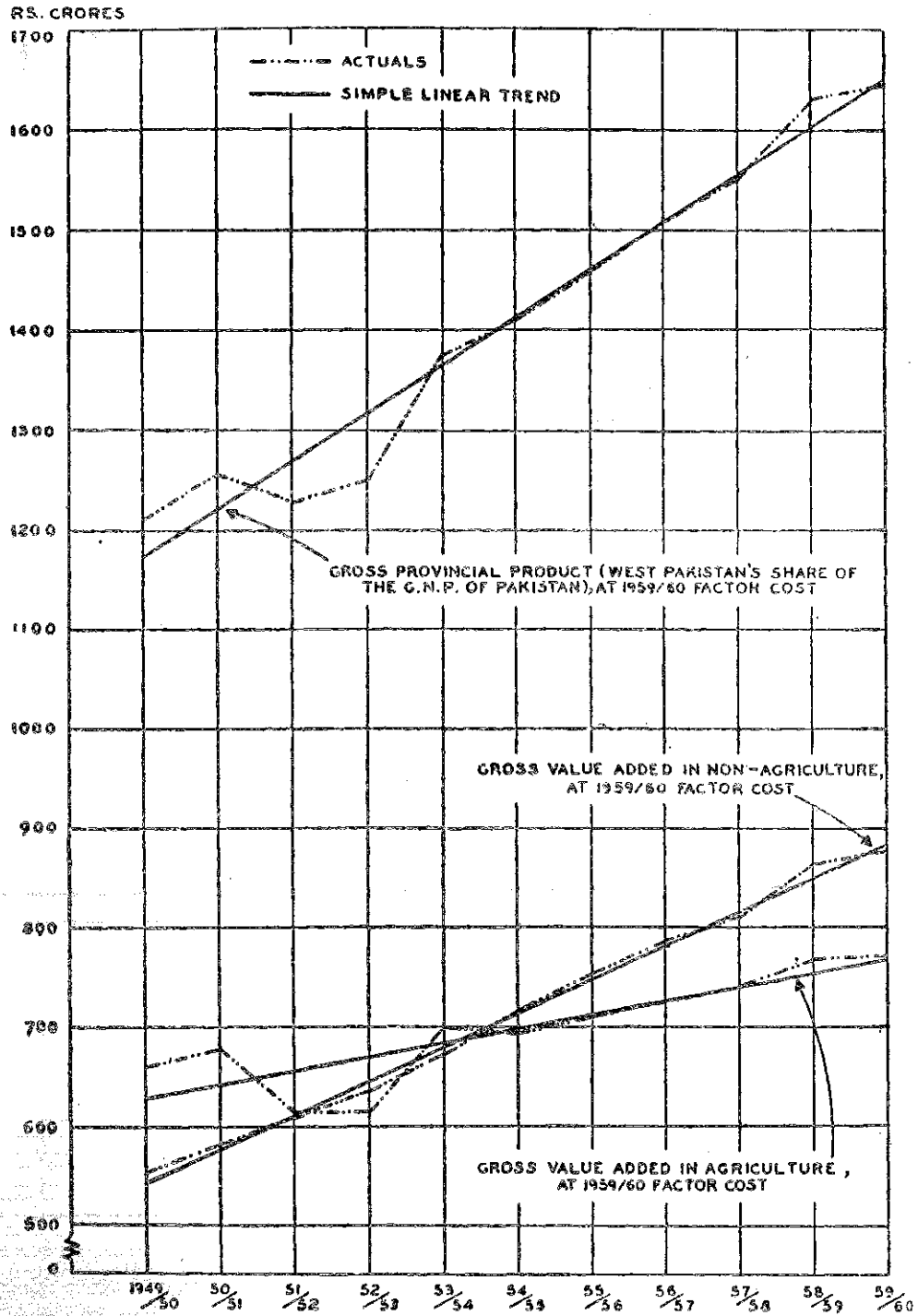
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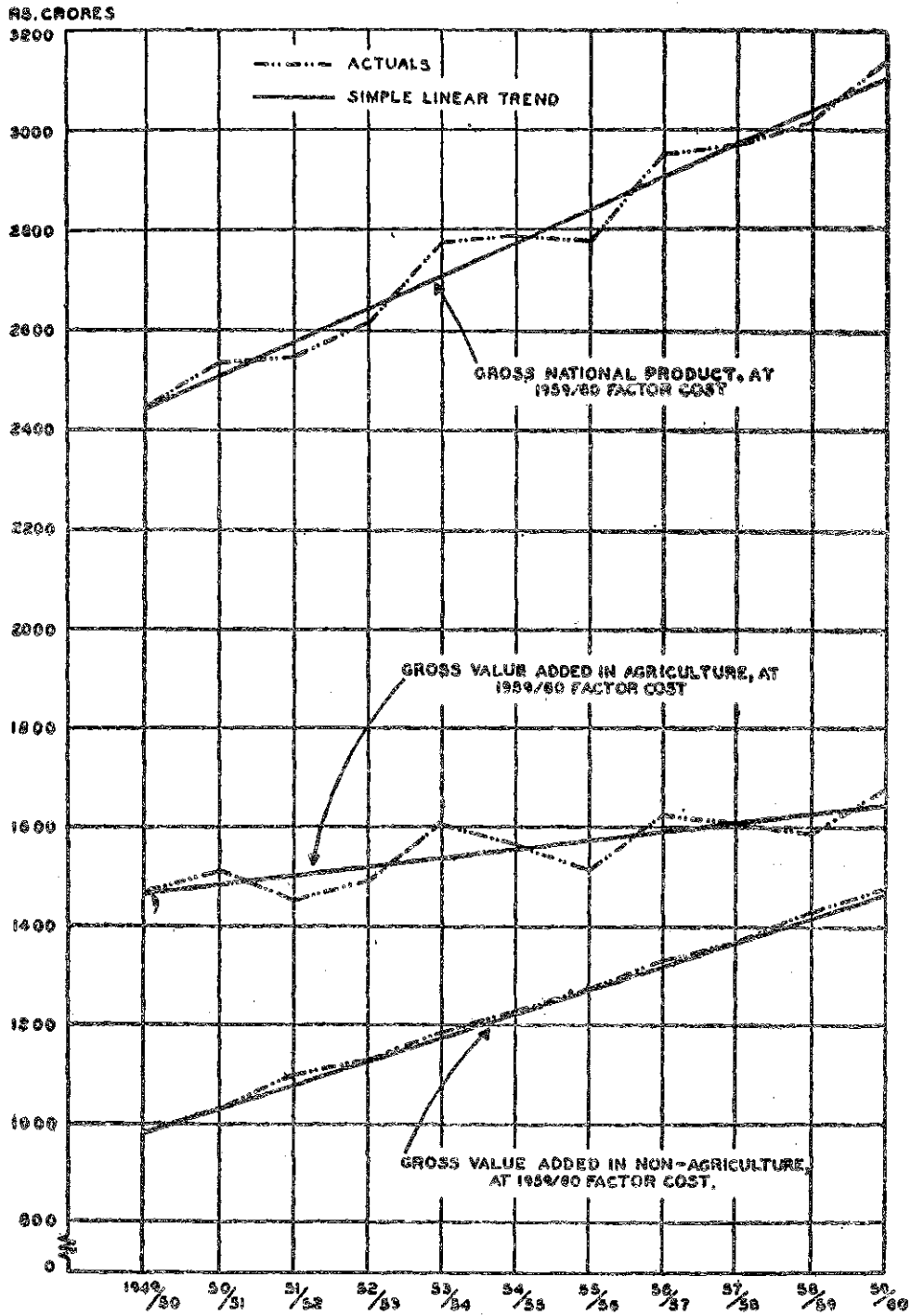
Figure 3. Gross National Product of Pakistan at 1959/60 Factor Cost

TREND VALUE 1959/60 = 100. NUMBERS IN BRACKETS ARE
TREND VALUES 1964/65, IN PERCENTAGE OF TREND VALUES 1959/60
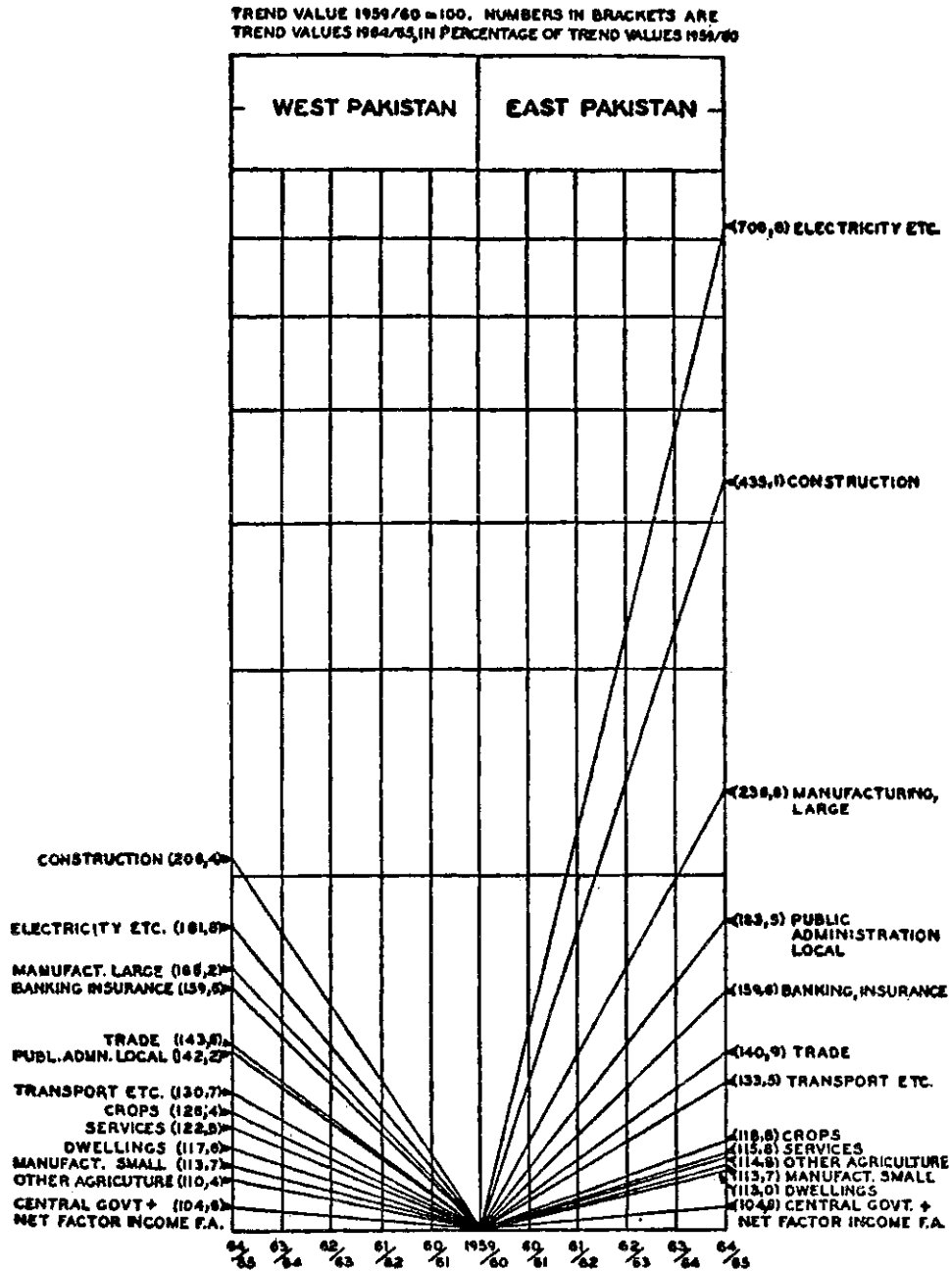
Figure 4. Sectoral Semilogarithmic Trends
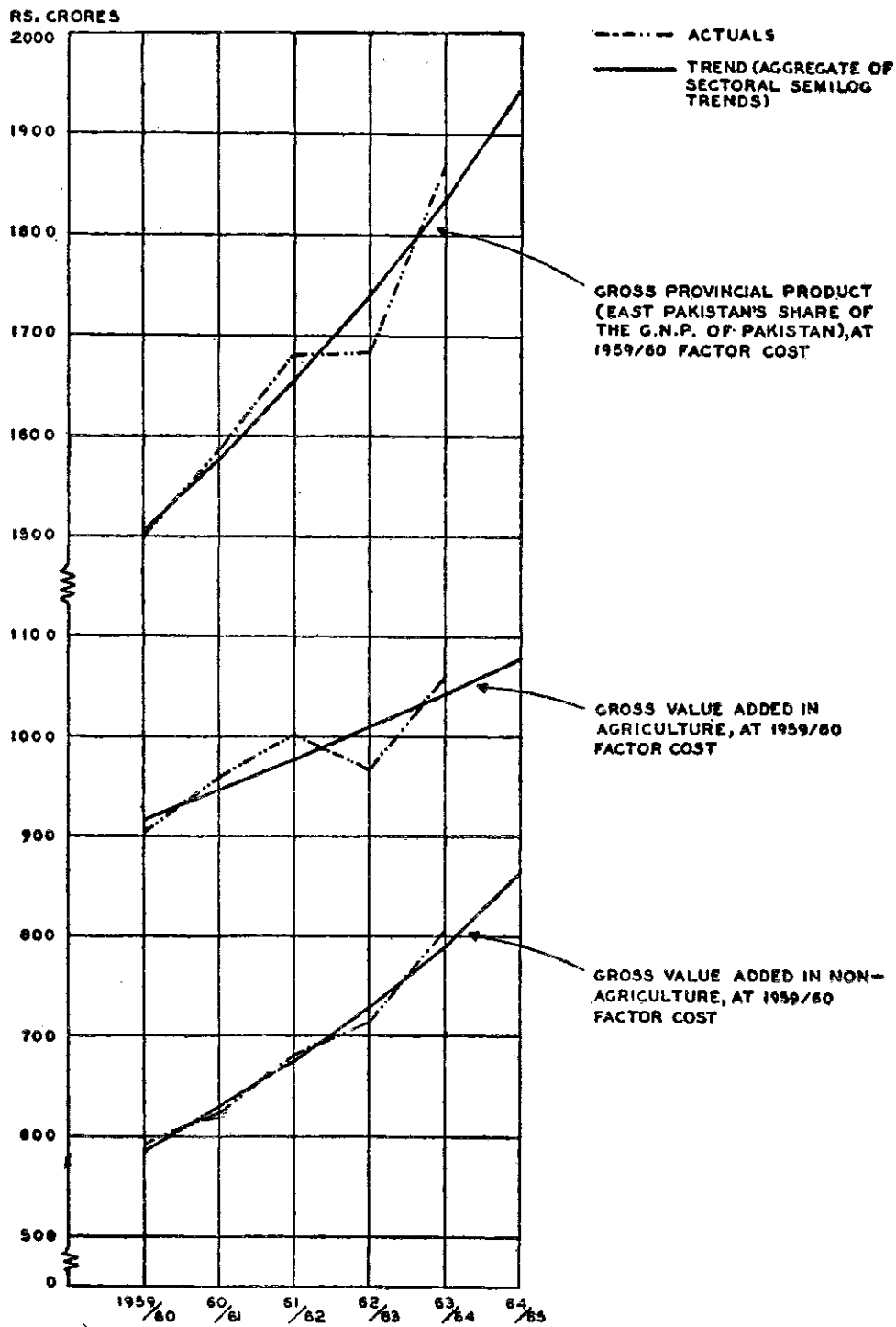
Figure 5. Gross Provincial Product of East Pakistan (Semilog Trends)
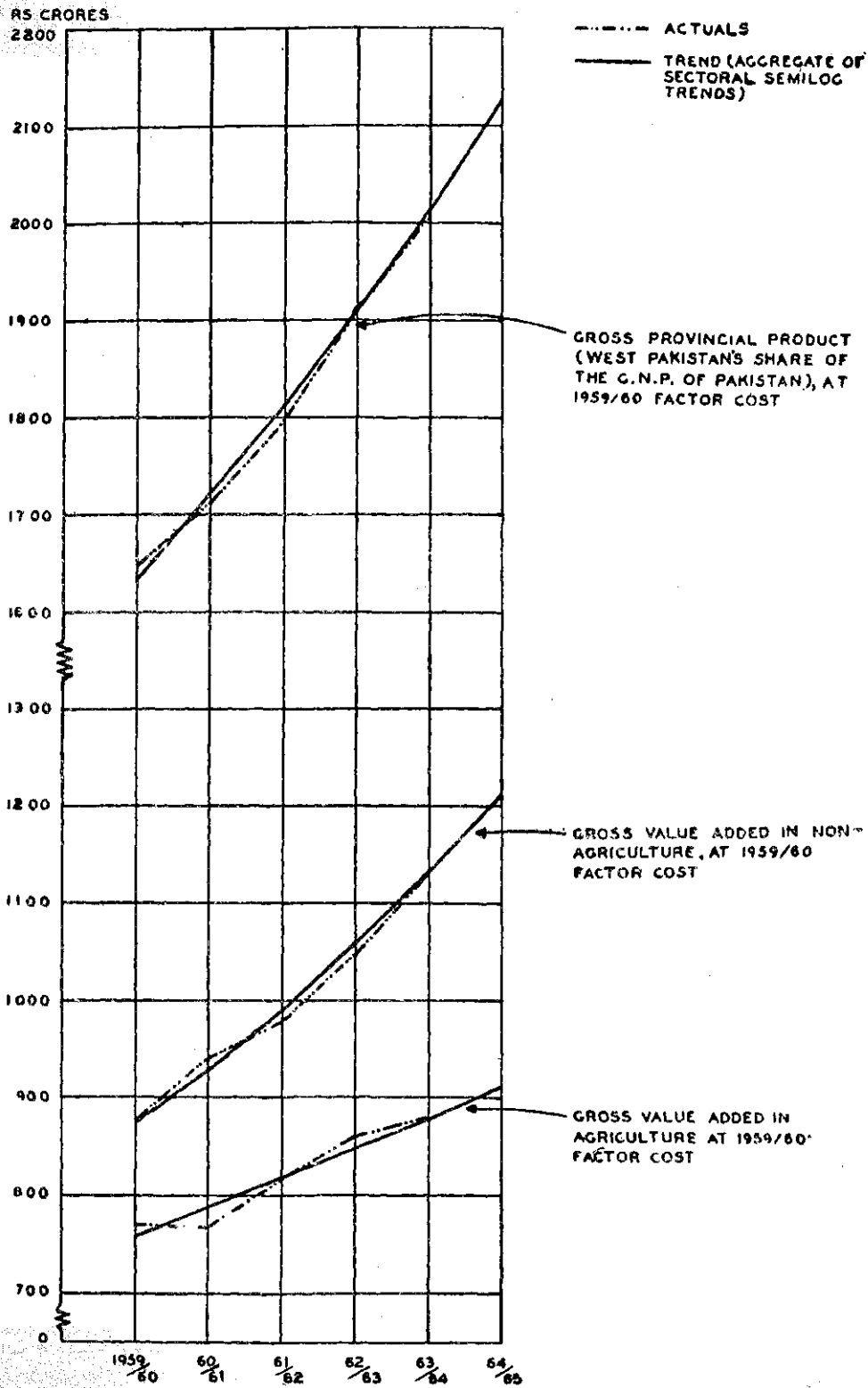
Figure 6. Gross Provincial Product of West Pakistan (Semilog Trends)
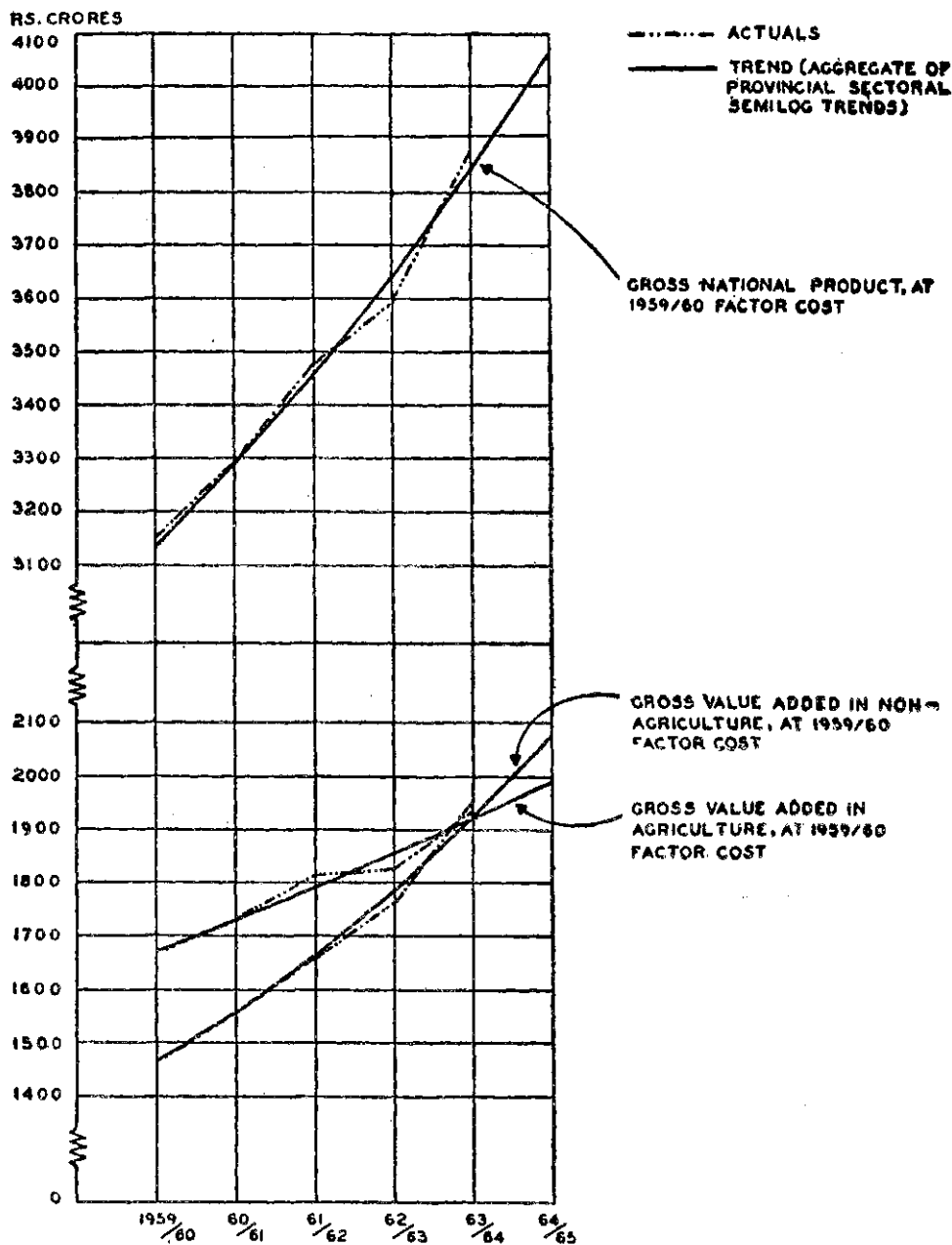
Figure 7. Gross National Product of Pakistan (Semilog Trends)

Appendix A

TABLE A-1

PER CAPITA INCOME IN BRITISH INDIA

Author	Year of estimate	Year for which estimate is made	Per capita income
			(*rupees*)
Dadabhai Noaraji	1876	1867	20.0
Baring and Barbour	1882	1881	27.0
Lord Curzon	1901	1897	30.0
William Digby	1902	1899	18.0
F. G. Atkinson	1902	1875	27.3
F. G. Atkinson	1902	1895	35.2
B. N. Sarma	1921	1911	50.0
Findlay Shirras	1924	1911	49.0
-do-	1924	1921	107.0
-do-	1924	1922	116.0
Shah and Khambhata	1924	1921	74.0
Wadia and Joshi	1925	1913	44.3
Vakil and Muranjan	1926	1910	58.5
Simon Commission	1926	—	116.0
Central Banking Enquiry Committee	1931	1928	42.0
Findlay Shirras	1932	1931	61.0
James Grigg	1938	1937-38	56.0
V.K.R.V. Rao	1939	1925-29	77.9
-do-	1940	1931-32	65.0
"Eastern Economist"	1949	1945-46	137.0

Source: [6, p. 45].

TABLE A-2

EAST PAKISTAN: GROSS PROVINCIAL PRODUCT AT 1959/60 FACTOR COST

Sector	1949/50	1950/51	1951/52	1952/53	1953/54	1954/55	1955/56	1956/57
	(................................. in crores of rupees ....)							
Agriculture	807.4	834.4	839.4	875.1	904.8	870.4	804.3	901.2
Crops: major and minor	650.7	673.4	673.4	706.4	730.4	691.5	621.7	714.1
Other agriculture, *n.e.s.*	156.7	161.0	166.0	168.7	174.4	178.9	182.6	187.1
Nonagriculture	430.0	446.8	482.6	486.6	502.9	511.2	519.1	539.5
Mining, quarrying	—	—	—	—	—	—	—	—
Manufacturing	47.2	49.7	52.2	55.7	60.3	65.1	71.2	75.9
a) Large scale	(6.9)	(8.5)	(10.1)	(12.6)	(16.2)	(20.0)	(25.1)	(28.7)
b) Small scale	(40.3)	(41.2)	(42.1)	(43.1)	(44.1)	(45.1)	(46.1)	(47.2)
Construction	5.8	5.1	9.4	10.2	15.6	12.6	13.5	19.3
Electricity, gas, water	0.6	0.7	0.8	0.8	0.9	1.0	1.1	1.2
Transport and communications	63.1	63.7	68.4	70.6	71.3	77.9	79.0	80.2
Trade	137.9	145.3	153.5	152.5	154.8	147.8	143.3	151.6
Banking and insurance	3.8	4.2	4.6	4.9	5.4	5.5	6.7	8.3
Ownership of dwellings	75.5	77.1	78.8	79.9	81.7	83.5	85.3	87.2
Services	52.5	54.2	55.8	57.5	59.3	61.1	63.0	64.8
Public administration, local	11.4	13.4	17.1	16.9	18.4	15.1	16.2	18.8
Central Government and defence	34.0	35.1	43.0	39.8	37.8	41.5	41.7	33.8
Net factor income from abroad	—1.8	—1.7	—1.0	—1.2	—2.6	—0.3	—1.9	—1.6
Gross provincial product	1,237.4	1,281.2	1,322.0	1,362.7	1,407.7	1,381.6	1,333.4	1,440.7
Population (*lakhs*)	422.5	432.9	443.5	454.4	465.6	477.0	488.6	500.6
GPP per capita (Rs.)	293	296	298	300	302	290	271	288

EAST PAKISTAN: GROSS PROVINCIAL PRODUCT AT 1959/60 FACTOR COST

Sector	1957/58	1958/59	1959/60	1960/61	1961/62	1962/63	1963/64
	(...............................in crores of rupees...........................)						
Agriculture	869.6	823.4	904.2	959.0	1,001.2	967.5	1,059.9
Crops: major and minor	679.0	627.0	703.9	753.5	790.4	750.1	836.6
Other agriculture, n.e.s.	190.6	196.4	200.3	205.5	210.8	217.4	223.3
Nonagriculture	550.5	559.0	593.0	624.6	678.5	715.0	807.2
Mining, quarrying	—	—	—	0.1	0.2	0.4	0.6
Manufacturing	80.2	85.0	91.2	100.2	110.7	122.9	137.1
a) Large scale	(31.9)	(35.6)	(40.6)	(48.2)	(57.3)	(68.1)	(80.9)
b) Small scale	(48.3)	(49.4)	(50.6)	(52.0)	(53.4)	(54.8)	(56.2)
Construction	17.2	14.4	22.4	18.4	38.6	38.6	67.3
Electricity, gas, water	1.3	1.4	2.0	2.1	2.6	5.1	9.1
Transport and communications	83.2	83.3	90.0	94.3	96.7	106.9	112.7
Trade	154.7	149.5	156.0	169.5	183.9	188.3	208.7
Banking and insurance	8.1	9.2	11.2	12.3	13.4	14.9	16.2
Ownership of dwellings	89.3	91.3	93.5	95.6	97.2	100.1	103.3
Services	66.0	68.0	70.1	72.0	74.2	76.4	78.8
Public Administration, local	18.8	19.9	19.5	22.2	23.1	24.6	34.0
Central Government and defence	32.0	37.9	38.7	39.5	39.7	40.6	44.1
Net factor income from abroad	—0.3	—0.9	—1.6	—.16	—1.8	—3.8	—4.7
Gross provincial product	1,420.1	1,382.4	1,497.2	1,583.6	1,679.7	1,682.5	1,867.1
Population (lakhs)	512.9	525.6	538.5	552.5	566.9	581.6	596.7
GPP per capita (Rs.)	277	263	278	287	296	284	313

TABLE A-3

WEST PAKISTAN: GROSS PROVINCIAL PRODUCT AT 1959/60 FACTOR COST

Sector	1949/50	1950/51	1951/52	1952/53	1953/54	1954/55	1955/56	1956/57
	(...............................in crores of rupees...........................)							
Agriculture	659.5	676.8	615.5	616.6	700.5	694.8	709.3	725.4
Corps: major and minor	425.0	436.8	369.7	365.3	443.2	432.0	440.5	450.2
Other agriculture	234.5	240.0	245.8	251.3	257.3	262.8	268.7	275.2
Nonagriculture	549.6	579.5	612.0	634.7	672.2	715.8	750.1	784.4
Mining and quarrying	2.7	3.7	4.1	4.2	4.5	4.5	5.0	5.5
Manufacturing	96.1	104.2	112.3	123.5	139.6	156.9	172.7	182.1
a) Large scale	(27.7)	(34.2)	(40.6)	(50.2)	(64.6)	(80.2)	(94.2)	(101.8)
c) Small scale	(68.4)	(70.0)	(71.7)	(73.3)	(57.0)	(76.7)	(78.5)	(80.3)
Construction	17.9	18.7	24.7	26.2	28.3	28.9	32.3	33.7
Electricity, gas, water	2.7	2.9	3.1	3.0	3.5	3.7	4.3	5.7
Transport and communications	60.8	64.5	65.8	71.2	75.4	81.0	83.2	86.6
Trade	147.7	156.7	157.5	158.5	168.5	177.7	181.8	187.6
Banking and insurance	3.9	4.2	4.6	5.0	5.4	5.6	6.8	8.3
Ownership of dwellings	63.2	64.9	67.0	68.6	70.4	72.5	74.5	76.9
Services	95.5	99.3	103.3	107.4	111.7	116.2	120.8	125.6
Public administration, local	26.9	27.1	27.5	28.5	29.7	27.6	28.9	40.2
Central Government and defence	34.0	35.1	43.1	39.9	37.9	41.6	41.8	33.9
Net factor income from abroad	—1.8	—1.8	—1.1	—1.3	—2.7	—0.4	—2.0	—1.7
Gross provincial product	1,209.1	1,256.3	1,227.5	1,251.3	1,372.7	1,410.6	1,459.4	1,509.8
Population (lakhs)	353.1	361.8	370.7	379.8	389.1	398.7	408.6	418.7
GPP per capita (Rs.)	342	347	331	329	353	354	357	361

TABLE A-3—(Contd.)

WEST PAKISTAN: GROSS PROVINCIAL PRODUCT AT 1959/60 FACTOR COST

Sector	1957/58	1958/59	1959/60	1960/61	1961/62	1962/63	1963/64
	(............................ *in crores of rupees* ....)						
Agriculture	739.3	768.9	771.1	769.5	817.1	859.7	875.6
Crops: major and minor	457.8	482.2	477.5	470.9	512.7	548.6	558.7
Other agriculture, *n.e.s.*	281.5	286.7	293.6	298.6	304.4	311.1	316.9
Nonagriculture	812.2	863.4	875.6	941.5	977.6	1,050.7	1,133.4
Mining and quarrying	5.9	6.4	7.0	8.1	8.6	9.6	10.4
Manufacturing	188.9	196.8	201.8	216.5	232.5	250.2	269.4
a) Large scale	(106.8)	(112.8)	(115.9)	(128.3)	(142.0)	(157.3)	(174.1)
b) Small scale	(82.1)	(84.0)	(85.9)	(88.2)	(90.5)	(92.9)	(95.3)
Construction	38.6	45.9	42.7	61.2	59.6	70.0	83.7
Electricity, gas, water	6.3	6.6	8.7	9.9	9.9	12.2	14.2
Transport and communications	87.7	105.1	92.1	102.3	98.7	108.6	111.8
Trade	193.9	198.8	210.3	219.8	230.1	249.3	274.6
Banking and insurance	8.1	9.2	11.2	12.4	13.4	15.0	16.3
Ownership of dwellings	79.2	81.5	83.7	85.8	88.8	91.6	95.2
Services	130.7	135.9	141.1	147.8	153.7	160.1	166.5
Public administration, local	41.2	40.3	39.7	39.8	44.3	47.2	51.8
Central Government and defence	32.1	37.9	38.8	39.4	39.8	40.7	44.2
Net factor income from abroad	—0.4	—1.0	—1.7	—1.5	—1.8	—3.8	—4.7
Gross provincial product	1,551.5	1,632.3	1,646.7	1,711.0	1,794.7	1,910.4	2,009.0
Population (*lakhs*)	429.0	439.5	450.3	462.0	474.0	486.3	498.9
GPP per capita (*Rs.*)	362	371	366	370	379	393	403

TABLE A-4

PAKISTAN: GROSS NATIONAL PRODUCT AT CONSTANT FACTOR COST OF 1959/60
FOR THE YEARS 1949/50 to 1963/64

Sector	1949/50	1950/51	1951/52	1952/53	1953/54	1954/55	1955/56	1956/57
	(.............................. *in crores of rupees* ....)							
Agriculture	1,466.9	1,511.2	1,454.9	1,491.7	1,605.3	1,565.4	1,513.5	1,626.6
Major and minor crops	1,075.7	1,110.2	1,045.1	1,071.7	1,173.6	1,123.4	1,062.2	1,167.3
Other agriculture	391.2	401.0	411.8	420.0	431.7	442.0	451.3	462.3
Nonagriculture	980.4	1,026.8	1,094.6	1,122.9	1,176.2	1,226.6	1,270.2	1,324.4
Mining and quarrying	2.7	3.7	4.1	4.2	4.5	4.5	5.0	5.5
Manufacturing	143.3	153.9	164.5	179.2	199.9	222.0	243.9	258.0
a) Large scale	(34.6)	(42.7)	(50.7)	(62.8)	(80.8)	(100.2)	(119.3)	(130.5)
a) Small scale	(108.7)	(111.2)	(113.8)	(116.4)	(119.1)	(121.8)	(124.6)	(127.5)
Construction	23.8	23.8	34.0	36.4	43.9	41.5	45.8	52.9
Electricity, gas, water and sanitary services	3.3	3.6	3.9	3.8	4.4	4.7	5.4	6.9
Transportation, storage and communications	123.9	128.2	135.2	141.7	146.6	158.8	162.2	167.4
Wholesale and retail trade	285.6	302.0	311.0	311.0	323.3	325.5	325.1	339.2
Banking and insurance	7.7	8.4	9.2	9.9	10.8	11.1	13.5	16.6
Ownership of dwellings	138.7	141.8	145.8	148.5	152.6	155.9	160.5	164.1
Services	148.0	153.5	159.1	164.9	171.0	177.3	183.8	190.4
Public administration, local	38.3	40.5	44.7	45.5	48.2	41.3	45.2	59.9
Central Government and defence	68.0	70.2	86.0	79.6	75.6	83.0	83.4	67.6
Net factor income from rest of the world	(—)3.6	(—)3.5	(—)2.1	(—)2.5	(—)5.3	(—)0.8	(—)3.9	(—)3.4
Gross national product	2,447.3	2,538.0	2,549.5	2,614.6	2,781.5	2,792.0	2,783.7	2,951.0
Population (*lakhs*)	775.6	794.7	814.2	834.2	854.7	875.7	897.2	919.3
Per capita GNP (*Rs.*)	316	319	313	313	325	319	310	321

(Contd.)

TABLE A-4—(Contd.)

PAKISTAN: GROSS NATIONAL PRODUCT AT CONSTANT FACTOR COST OF 1959/60 FOR THE YEARS 1949/50 to 1963/64

Sector	1957/58	1958/59	1959/60	1960/61	1961/62	1962/63	1963/64*
	(..................................in crores of rupees...................................)						
Agriculture	1,608.9	1,592.3	1,675.3	1,728.5	1,818.3	1,827.2	1,935.5
Major and minor crops	1,136.8	1,109.2	1,181.4	1,224.4	1,303.1	1,298.7	1,395.3
Other agriculture	472.1	483.1	493.4	504.1	515.2	528.5	540.2
Nonagriculture	1,364.1	1,425.0	1,468.6	1,566.1	1,656.1	1,765.7	1,940.7
Mining and quarrying	5.9	6.4	7.0	8.2	8.8	10.0	11.0
Manufacturing	269.1	281.8	293.0	316.7	343.2	373.1	406.5
a) Large scale	(138.7)	(148.4)	(156.5)	(176.5)	(199.3)	(225.4)	(255.0)
b) Small scale	(130.4)	(133.4)	(136.5)	(140.2)	(143.9)	(147.7)	(151.5)
Construction	55.8	60.2	65.1	79.6	98.2	108.6	151.0
Electricity, gas, water and sanitary services	7.8	8.0	10.7	12.0	12.5	17.3	23.3
Transportation, storage and communications	172.3	191.0	185.7	200.8	200.4	221.9	230.9
Wholesale and retail trade	348.6	348.4	366.5	380.3	414.0	347.6	483.3
Banking and insurance	16.2	18.4	22.4	24.7	26.8	29.9	32.5
Ownership of dwellings	168.5	172.4	177.2	181.4	186.0	191.7	198.5
Services	196.7	203.9	211.2	219.8	227.9	236.5	245.3
Public administration, local	58.3	57.7	55.6	57.8	62.4	65.4	79.4
Central Government and defence	64.0	75.8	77.5	78.9	79.5	81.3	88.3
Net factor income from rest of the world	(—)0.7	(—)1.9	(—)3.3	(—)3.1	(—)3.6	(—)7.6	(—)9.3
Gross national product	2,973.0	3,017.3	3,143.9	3,294.6	3,474.4	3,592.9	3,876.2
Population (lakhs)	941.9	965.1	988.8	1014.5	1040.9	1067.9	1095.6
Per capita GNP (Rs.)	316	312	318	325	334	336	354

*Provisional

Appendix B

TABLE B-1

REGRESSION COEFFICIENT b TO THE SEMILOG TRENDS, AND CORRESPONDING CONSTANT ANNUAL GROWTH FACTOR (1+r)=ANTILOG b

Sector	East Pakistan		West Pakistan		East and West Pakistan	
	b	(1+r)	b	(1+r)	b	(1+r)
Crops	.0148	1.035	.0203	1.048		
Other agriculture	.0119	1.028	.0084	1.020		
Manufacturing, large scale	.0749	1.188	.0440	1.107		
Manufacturing, small scale	.0111	1.026	.0111	1.026		
Mining and quarrying	—	—	.0410	1.099		
Construction	.1277	1.342	.0631	1.156		
Electricity, gas, water	.1701	1.479	.0516	1.127		
Transportation, *etc.*	.0251	1.059	.0236	1.055		
Trade	.0298	1.071	.0316	1.075		
Dwellings	.0107	1.025	.0140	1.033		
Services	.0127	1.030	.0179	1.042		
Public administration, local	.0528	1.129	.0305	1.073		
Central Government and net factor income from abroad					.0042	1.009
Banking and insurance					.0406	1.098

Note: This table contains all the regression coefficients used for our semilog trend computations (1959/60—1963/64).

Appendix C

I. TREND FORMULAS

A. Linear Trend, *i.e.*, the trend value grows by a constant absolute amount each year.

The structural relationship between trend value and time can in this case be expressed by the linear equation:

$$Y_t^* = Y_0^* + bX_t \quad \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots \text{(1)}$$

where X is time, Y* is trend value ("expected" value) Y_0^* is a constant which also can be regarded as the trend value in year 0, the last year before our time series start, and b is the yearly increase in Y*.

X and Y* are variables, X the independent and Y* the dependent variable, whereas Y_0^* and b are parameters derived from the actual time series. These two parameters are determined by minimizing the sum of squared deviations of the actual observations from the corresponding trend values:

$$Y_0^* = \overline{Y} - b\overline{X} \quad \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots \text{(2)}$$

and

$$b = \cfrac{\sum_1^N XY - \cfrac{\sum_1^N X \sum_1^N Y}{N}}{\Sigma(X - \overline{X})^2} \quad \dots\dots\dots\dots\dots\dots \text{(3)}$$

where N is the number of observations, $\overline{Y}$ is the average of the Y values, and $\overline{X}$ the average of the X values.

B. Exponential Trend with Constant Annual Compound Growth Rate, *i.e.*, the trend value grows by the same percentage from one year to the next throughout the period.

The functional relationship between trend value and time can in this case be expressed by the exponential equation:

$$Y_t^* = Y_0^*(1+r)^{x_t} \quad \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots \text{(4)}$$

where r is the yearly growth rate. Equation (4) can be transformed into the

linear semilogarithmic equation:

$$\text{Log } Y_t^* = \text{Log } Y_0^* + X_t \cdot \text{Log}(1+r) \dots\dots\dots\dots\dots\dots\dots(4a)$$

The term semilogarithmic trend refers to this equation, where the dependent variable is in logarithmic terms but the independent variable is still in absolute terms.

For convenience we use the symbol b for Log $(1+r)$ and y for Log Y:

$$y_t^* = y_0^* + bX_t \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(4b)$$

The variables are now y_t^* ($=\text{Log } Y_t^*$) and X_t, whereas y_0^* ($=\text{LogY}_0^*$) and $b = \text{Log}(1+r)$. The parameters are determined by applying the formulas (2) and (3) above.

The regression coefficient b is here the annual constant increase in y_t^*, i.e., in Log Y_t^*, whereas the growth rate of Y* is r. As $b = \log(1+r)$, we find the growth rate r by:

$$r = \text{Antilog } b - 1 \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(5)$$

Similarly, the trend value Y* is

$$Y^* = \text{Antilog } y^* \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(6)$$

II. AGGREGATE GROWTH RATES AND ACCELERATION

In the simple case of two sectors with constant per annum growth *factors* a and b (the growth *rates* being a — 1 and b — 1), the aggregate growth factor "of year n" is:

$$g_n = \frac{a.X_{n-1} + bY_{n-1}}{X_{n-1} + Y_{n-1}} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(1)$$

where X and Y are the trend values of the sectors. The acceleration "of year n", defined as

$$g_n' = \frac{g_n - g_{n-1}}{g_{n-1}}, \text{ can be derived from } (1)$$

$$g_n' = \frac{(a - b)^2 X_{n-2} Y_{n-2}}{(X_{n-1} + Y_{n-1})^2} \dots\dots\dots\dots\dots\dots\dots\dots\dots(2)$$

As both a and b are supposed to be positive (and constant) and also X and Y are positive (though varying from year to year), g_n' *must be positive* *if* $a \neq b$. Only in the special case of $a = b$, we get $g_n' = 0$, and g_n' can never be negative.

If we have more than two sectors, with constant growth factors a, b, c, d........, we get $g'_n = 0$ only when $a = b = c = d$........ If one (or more) sectoral growth rate differs (differ) from that of the other sectors, the acceleration as measured by g'_n must be greater than zero.

In the two-sector case, the relative increase in the acceleration itself, defined as $g'_n = \dfrac{g_n - g_{n-1}}{g'_{n-1}}$, can be derived from (2) and the result can be written:

$$g''_n = \frac{(a-b)\,(b.Y^2_{n-2} - aX^2_{n-2})}{(X_{n-1} + Y_{n-1})^2} \quad \cdots\cdots\cdots\cdots\cdots\cdots\cdots(3)$$

Since a, b, X are positive, we get

$g''_n > 0$ if

$$a > b > a\,\frac{(X_{n-2})^2}{(Y_{n-2})^2}$$

Or $b > a > b\,\dfrac{(Y_{n-2})^2}{(X_{n-2})^2}$

As $X_{n-1} = a.X_{n-2}$ and $Y_{n-1} = b.Y_{n-2}$ the conditions for getting $g''_n > 0$ can also be written:

$$a > b \quad \text{and} \quad Y_{n-1} \cdot Y_{n-2} > X_{n-1} \cdot X_{n-2}$$

which says that the acceleration is increasing as long as the fastest growing sector's share of the aggregate is less than one half[1].

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[1]The relative increase in the acceleration, g" as defined above, will still be positive for the year in which the fastest growing sector's share exceeds one half; it may be positive, zero, or negative the next year; but it must be negative for the following years. These time lags are due only to our use of definite time periods. If we introduce infinitesimal time period, g" will pass zero downwards at the moment the fastest growing sector's share of the aggregate passes one half upwards.

Personal Income Distribution and Personal Savings in Pakistan: 1963 64

Asbjorn Bergan

Personal Income Distribution and Personal Savings in Pakistan: 1963/64

Asbjorn Bergan

SCOPE AND LIMITATIONS

One of the objectives of Pakistan's Third Five-Year Plan is "to make substantial progress towards achieving certain specific social objectives such as diminishing inequalities in the distribution of income........" [14, p. 39]. The main purpose of the present study is to measure these inequalities. As the basic source we have used provides data on private consumption as well as on personal income, some rough calculations on personal savings (as residuals) have been included in this paper.

Income distribution and savings in Pakistan have been studied by othersi n the past [2; 4; 8]. However, due to the limitations of data, all of them have been confined to the coverage of particular geographical areas, population groups or industrial sectors, whereas the present paper, in principle, deals with all personal income and savings in the country.

The data for this study were mainly obtained from the "Quarterly Surveys of Current Economic Conditions" conducted by the Central Statistical Office (CSO) during the fiscal year 1963/64. Since similar information was not available for other years, the scope of the present study had to be limited to the one year, 1963/64. This severe limitation must be fully kept in mind when conclusions are drawn on the basis of our findings. While the results may be valid for 1963/64, their generalization over time would depend on the degree of stability of the various functional and struc-

tural relationships involved. E.g., aggregate personal savings rates are probably very unstable, particularly in the rural areas of Pakistan and, hence, in the country as a whole. As pointed out by Lewis and Khan: "there are not likely to be any stable aggregate relations between saving and income in a developing country..........a variable (saving) so strongly affected by world markets and by agricultural output" [8, p. 23]. Savings rates by income groups (by size of income) should, however, be less affected by year-to-year fluctuations in prices and physical output. Similarly, the relative income distribution by size might be fairly stable over a number of years even if the aggregate income is subject to substantial fluctuations. The functional distribution of personal income (wages, self-employment, *etc.*, as relative shares of the total) may be somewhat, but perhaps not significantly, affected by short-term fluctuations in total income. Again, this effect, if any, relates more to the rural than to the urban areas. Finally, the East-West and even more the rural-urban relative shares of total personal income are influenced by changes in agricultural factor income.

The degree of instability in the various relations which the present paper deals with will remain uncertain until basic data become available for a number of years. In spite of these uncertainties, estimates based on actual observations for one year may be useful supplements to mere guesses based on subjective considerations only.

Apart from the instability problem, the reliability of some of the findings for the year 1963/64 can, of course, also be questioned. Some of the deficiencies of the Quarterly-Survey data and their effect on our results are discussed in Section II.

Income data from the income tax returns have, to a minor extent, been used as supplementary material. The CSO's national income estimates, the government budgets, and a few other sources have provided the basis for an attempt to check the estimated aggregate personal income.

The income distribution results might be a little more reliable than the savings figures, because the latter are extremely sensitive to even relatively small errors in the observations of income and household expenditures. The main emphasis should, therefore, be put on the income distribution aspect of the study.

II. THE QUARTERLY SURVEYS CURRENT ECONOMIC CONDITIONS, 1963/64

At the time this paper was being written, the CSO had not yet published the results of the 1963/64 Quarterly Surveys (QS), but we have had access to the main tables in the forthcoming CSO publication and also to the

individual 8000-9000 household schedules. The QS is a continuation of the previous National Sample Surveys (NSS), first, second and third rounds, which contained data on personal income and expenditures. The NSS pertained to the rural areas only whereas the coverage of QS has been extended to both the rural and the urban areas. Furthermore, the QS provides more information about the personal (household) income, by size and by source. It consists of separate surveys carried out in each of the four areas, namely urban and rural areas in East and West Pakistan. They are supposed to be mutually consistent so they can be aggregated by applying proper weights. Cities and towns with five thousand people or more form the urban areas, and the rest of the country is defined as rural. A two/three stage stratified sampling technique was used, the last stage unit being the household. Information was collected from the households by interviews during the period July 1963-June 1964. One-fourth of the households in the sample were supposed to be contacted in the first quarter, another one-fourth in the second quarter, and so forth, selected in such a way that seasonal fluctuations in income and expenditures were to be levelled out[1]. A selection of 10,710 households was made for the sample, but only 8,096 of them were incorporated in CSO's actual sample. Noncontacted households and rejected schedules made up the difference.

TABLE I

DISTRIBUTION OF SAMPLED HOUSEHOLDS

	Selected for the sample	CSO's actual sample	Number of households in the actual sample for one thousand households in the area
East Pakistan (rural)	3,986	2,952	0.3
East Pakistan (urban)	1,735	1,347	2.5
West Pakistan (rural)	2,782	2,106	0.3
West Pakistan (urban)	2,207	1,691	0.8
Total:	10,710	8,096	0.9

Source: [1 and the CSO].

Table I above reveals two weaknesses of the survey. First, the sample is relatively small for measuring the income distribution. Sampling errors may become significant, especially for the characteristics of the thinly populated income groups. Second, the difference between the size of the planned

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1A detailed description of the sample design and the method of conducting the surveys may appear in the CSO publication.

and that of the actual sample is relatively large, on the average amounting to 24 per cent or 2,614 households. For 702 of these households, the income data had been collected and the schedules were sent in to the headquarters but they were, for various reasons, not incorporated in the CSO's final tables. These rejected returns, however, were made available for the present study.

The reason for rejection had, in most cases, been incomplete or inconsistent information about the household expenditures. In other cases, there were some apparent inconsistencies between income and expenditures. The income data in the rejected returns seem to be as good as the corresponding data in the accepted returns. On the average, the rejected returns showed higher income than the accepted ones, notably for the urban areas we have incorporated all of them in our estimates of income distribution. As far as income is concerned, our actual sample is, thus, 19 per cent below the planned sample (15, 16, 16 and 22 per cent, respectively for the four areas).

The missing 19 per cent consists mostly of households which had not been contacted or had refused to respond. The major reasons for noncontact were communication difficulties, deficiencies in the lists of households, movements, *etc.* To some extent, lack of cooperation by respondents is experienced in all surveys of this kind, in all countries, because some people are reluctant to reveal information about their income and expenditures.

A crucial question is whether these cases of noncontact and nonresponse have caused any significant bias in the sample with regard to income distribution or savings rates. The possibility cannot be excluded that the incomes of nonresponding households were, by and large, above the average. Income data contained in the income tax returns provide some evidence that the QS has missed relatively more of the high than of the medium and lower income groups in the urban areas. In addition, there is also a possibility that relatively more has been missed out in the extreme low than in the medium income brackets, especially in urban areas. Our results may, thus, understate income inequality.

III. THE CONCEPT OF PERSONAL (HOUSEHOLD) INCOME

Household income as defined in the Quarterly Survey consists of the 13 items listed in the left column of Table II. The five items under subheading "A" refer to the last one month before the month of the enumeration, whereas the eight items under subheading "B" refer to the last year (last 12 months). Not all of these 13 items show up separately in the

final tables in the forthcoming CSO publication as they have been consolidated into four main categories, *viz.*, salaries and wages, self-employment and property, gifts and assistance, and all others[2]. The composition of these categories of income has been shown by the X's in Table II.

TABLE II

COMPOSITION OF VARIOUS ITEMS OF INCOME

Income by source in the QS questionnaire ↓	Income by source in the QS tables →	(a) Salaries and wages	(b) Self-employment and property	(c) Gifts and assistance	(d) All others
A. 1. Salaries and wages		X			
2. Self-employment			X		
3. Rent			X		
4. Professional fees			X		
5. Other sources					X
B. 1. Interest			X		
2. Dividends					X
3. Borrowings					X
4. Agricultural farm			X		
5. Sale of property					X
6. Gifts and charities				X	
7. Savings withdrawals					X
8. Other sources					X

The ideal income concepts for measuring personal-income distribution and personal savings would be:

1) personal (household) income defined either as

   a) net factor income accrued to the household, or as

   b) net factor income plus current, direct transfers to the household from outside, and

2) personal (household) *disposable* income, defined as net factor income plus current, direct transfers less direct taxes paid by the household.

As Table II shows, there is quite a distance from the QS income concept to any of these ideals. However, by deducting some of the items included in the QS income we get a modified income concept which comes not too far from 1) *b* above and, thus, can serve our purpose.

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[2]All the B-items are converted to a monthly basis.

First, the QS income includes three main items which are obviously not income, but dissavings, namely "borrowings" (B-3), "sale of property" (B-5) and "savings withdrawals" (B-7). Also item B-6, which is supposed to cover "gifts and charities, *occasionally* from friends, relatives, religious and charitable institutions", in cash and in kind, should be deducted. If occasional gifts and charities were to be regarded as "proper" transfers, they should be deducted from the supporter's rather than the recipient's income, when transfers are to be included in the income concept. It was not possible to do so because this item showed up separately in the recipient's and not in the supporter's income account. Furthermore, we are inclined to regard occasional gifts and charities to be household expenditures on the donor's account rather than proper transfers. In fact, they are treated both as transfers and household expenditures in the surveys where they appear in the donor's as well as in the recipient's income and in the hosehold expenditures of the former. The item is small on the average (0.6 per cent of the total personal income of the country as a whole), but relatively substantial in the lowest income group. It would have reduced the estimated income inequality slightly if it were included in the recipient's income[3]. "Other sources" (A-5 and B-8) include pensions, bonus, house-rent allowances, and "regular contributions from sons and daughters staying elsewhere". In case the contributing son or daughter belongs to another household or is counted as a separate household in the universe from which the sample has been drawn, the contributions imply double counting and should have been deducted from the contributors' incomes. It was not possible to make such corrections for the various income groups. Preliminary results from the survey of the first quarter of 1965, where transfers between households were recorded separately on the contributors' expenditure account, indicate that these transfers are insignificant. Contributions from close relatives who do *not* count as separate households or as members of other households will apparently amount to much more, and *their* contributions have not been double counted.

A problem which has relevance to the three components, *i.e.*, "self-employment" (other than agriculture) (A-2), "rent" (A-3) and "agricultural farm" (B-4), is whether these items are net or gross of current inputs and depreciation. They are presumably net of current inputs, but it is doubtful to what extent depreciation allowances have been deducted. For property actually leased out, the enumerators were instructed to record "the income derived from such leases" as rental income. For owner-occupied or rent-free houses, imputed house rent was included both in income and expen-

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[3] In the calculations of savings, we have added this item again because all the household expenditures have been deducted—also those which were met by gifts and charities. Also food received as gifts was included in the recipient's household expenditures if consumed during the reference period (whereas other gifts in kind apparently have been treated differently).

diture. Most likely, the recorded rent is "more" gross than net of depreciation[4]. The same is probably true in respect of agricultural income where depreciation appears to have been deducted only for smaller implements and spare parts. Apparently, no depreciation allowance has been deducted for farm buildings, machinery or transport equipment. Finally, income from self-employment (other than agriculture), which extends to all private, noncorporate industrial and business activities, is a mix of gross and net. Our guess would be that it is closer to net than to gross in the higher income groups, but not in the lower income groups consisting of small shopkeepers, tailors, rickshaw-owners, *etc.* As the capital equipment counts for relatively more in the high than in the low income groups of self-employed persons, the aggregate of this component may be close to net rather than gross. However, the depreciation of capital equipment in the private, noncorporate, self-employment sector outside agriculture and housing is presumably an almost negligible part of the total personal income. For the sake of simplicity, and also in order to avoid any overstatement of income inequality as well as of aggregate savings rates, we assume in the *calculations* that the three income components we have dealt with in this paragraph are gross in the sense that they include depreciation.

The conclusion of this brief discussion of the Quarterly-Survey income (receipt) concept is that if we deduct borrowings, withdrawals of savings, sale of property, and gift and charities, we come close to a concept of *gross personal (household) income, defined as the gross factor income of the household plus current transfers to the household from outside.*

To bring the data in conformity with this concept, it was necessary to reclassify the households in the various income groups adopted by the CSO. As a consequence of the difference in income concept, we have got more of the accepted returns in the lower income groups. On the other side, the rejected returns which we have incorporated showed, on the average, a higher income than the CSO's accepted sample. Furthermore, to the total personal income for the country as a whole, as derived from the survey data only, we have added another 70 crores, or 1.8 per cent, of which we have allocated 12 crores to the East urban and 58 crores to the West urban areas. This adjustment was based on a comparison of the survey schedules in the high-income bracket with the income data from the income-tax returns. Income-tax statistics for 1963/64 are not yet available. We have resorted to the data for 1960/61 as presented by Mrs. K. Haq in her article [4]. The 1960/61 net taxable income data [4, p. 467] were inflated by 23.5 per cent[5] to get the corresponding gross taxable income, which should correspond to

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[4]In fact, the formulations used in the instructions may leave some doubts about current inputs too, *e.g.*, interest and maintenance.

[5]Based on the 1957/58 statistics.

our personal-income concept (except for the depreciation element in the latter). These figures, and the limit values of the taxable income groups, were further inflated by the growth rate in GNP at current prices from 1960/61 to 1963/64[6] and distributed by province in ratios derived from the 1957/58 statistics[7].

A number of objections can be raised against this rough calculation against the method and the source. The 70 crores is most likely a conservative estimate for many reasons. Still, this amount had a substantial impact on the urban income distribution, but not on the distribution of the total personal income in Pakistan.

IV. RECONCILIATION OF PERSONAL-INCOME AND NATIONAL-INCOME ESTIMATES

Our estimates of gross personal income 1963/64 and its distribution appear in Appendix Tables A-1 to A-9. For the country as a whole, gross personal income is estimated at 3,912 crore rupees on a yearly basis. Before a discussion of the distribution of this total is undertaken, it would be appropriate to get a rough measure of consistency between this aggregate and the CSO's estimate of gross national product.

Within a standard national accounting framework, the gross personal (household) income, as defined in the foregoing section, can, for the household sector as a whole, be expressed in the following terms: gross personal (household) income = gross national product at factor cost (*i.e.*, gross factor income) *less* gross government factor income *less* direct taxes on corporations and on noncorporate firms[8] *less* gross corporate savings *plus* interest on internal, national debt *plus* net direct transfers on current account from government and from abroad to the private sector (including corporations).

This equation is not valid without qualifications, of which two need to be examined. First, the reference period must be the same for all items on both sides. Second, the prices implicit in the personal income must be consistent with those in the GNP.

The official estimate of GNP for 1963/64 at current factor cost, 4,151.5 crore rupees [13], refers to the fiscal year, which is also the reference period for which the other items on the right-hand side of the equation above can be estimated. For parts of the personal-income estimates, however, the

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[6]Since urban income has shown a faster rate of growth, this adjustment may still understate the total income.

[7]The latest information available to us about the provincial breakdown.

[8]Noncorporate firms' income after taxes is presumably included in the personal-income estimate.

reference period is different. Wages and salaries, rent, professional fees and a part of "other sources" (all the A-items) refer roughly to the fiscal year 1963/64[9], whereas "agricultural farm" income, interest, dividends and a part of "other sources" (all the B-items) should be simple averages of 1962/63 and 1963/64[10]. Assuming that income from "agricultural farm" has increased from 1962/63 to 1963/64 in the same proportion as gross value added in agriculture (the latter contains more than what is supposed to be covered by the former), and assuming that the other three items in the two-year average category have increased at the same rate as the nonagricultural part of GNP, the personal-income estimate should have been around 16 crores higher if adjusted to the year 1963/64.

With regard to the second qualification, there is a discrepancy between the prices for home-produced and home-consumed food applied in our personal-income estimation and those implicit in the GNP. The former are supposed to be local "prevailing retail market prices" in the month of consumption (*i.e.*, the month before the enumeration month), whereas the latter are wholesale prices at the time of harvest. A similar price discrepancy relates to quantities which the farmers may have sold on retail markets because wholesale prices were applied to the total production in the GNP estimates, whereas the actually realized money income was supposed to be registered in the Quarterly Survey. Now, as far as the imputed farm income is concerned, the enumerators were, in a lot of villages, faced with the difficulty that local markets were nonexistent, so they could not get any local-market prices. In such cases the imputed income may have been based on prices which the farmer (or other farmers in the area) had realized for quantities actually sold, *e.g.*, wholeslae prices at the time of harvest. Anyway, we had no means to calculate the difference between GNP and personal income caused by price discrepancies.

For the savings estimates, the prices of home-produced and home-consumed goods do not raise any problem, because one and the same set of prices was supposed to be used on the income and the expenditure side. But for the interpretation of the income figures, notably in respect of the income distribution, the principles used for the imputations are of some importance. The issue has, therefore, been subject to a closer examination in the appendix on imputed farm income[11], where we conclude that the principles laid down in the Quarterly Surveys for imputing farm income are adequate for the purpose of measuring personal-income distribution.

Government factor income, interest on rupee debt, and direct transfers

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9To be exact, they should rather refer to June-May, but we disregard the one-month time lag.
10*See* footnote 9.
11*See*, page 82.

from the government to the private sector can be derived from the central and provincial government budgets. There was no firm basis for estimating gross corporate savings and direct taxes paid by corporations, but some, presumably rather conservative, estimates were made on the basis of the central government budget and available balance sheets for a number of public joint stock companies.

The outcome of the reconciliation exercise is shown in the account below. It is likely that gross corporate savings have been understated, and so also the direct corporate taxes. Transfers from government include only such transfers which are supposed to be included in our personal income estimates as well.

TABLE III

RECONCILIATION ACCOUNT, 1963/64

	(rupees in crores)		*(rupees in crores)*
Gross personal income	3,912	GNP at current factor cost	4,151.5
Adjustment on account of reference period	16		
Government factor income[a]	54	Current transfers from government[c]	
Gross corporate savings	52	to private sector and interest on rupee	
Direct taxes on corporations[b]	30	debt.	23.5
Direct taxes on noncorporate firms	6		
Unexplained balance	105		
(2.7% of personal income)			
	4,175.		4,175.0

[a]Presumably the same amount as included in the GNP (where it is spread over many sectors).

[b]Income tax and super tax paid by corporations.

[c]Only such transfers which are presumably included in the gross personal income.

Current transfers to the private sector from abroad have been ignored as the item is assumed to be negligible in this context. But two more items should have shown up in the account, namely, some depreciation allowance on the left side and an adjustment for price discrepancies on the right. Whether the one would have matched the other, we do not know. As the account stands, the personal-income estimates appear to have been understated by 2 to 3 per cent. Considering that the GNP and the personal-income estimates are based on completely different sources, they are quite consistent with each other.

It seems to be a common experience that the income figures one gets in surveys of this kind are more or less depressed. The undervaluation in the Quarterly Survey has probably not been fully offset by the addition of 70 crores (*see* Section III). Perhaps both the personal income and the

GNP estimates are on the low side. Be that as it may, the relatively high degree of consistency is, after all, somewhat assuring, and it has the advantage that the two sets of estimates can be used together without major adjustments.

There is no basis for establishing a similar reconciliation account on any other level than the national aggregate. Since the dominating entries in the account are the GNP and the personal income, we can, however, get an idea about the consistency on the provincial level by comparing the East and West Pakistan shares of personal income with those of the GNP. No figures for the 1963/64 domestic provincial products at current prices have been released so far, but a breakdown of the 1963/64 GNP at 1959/60 prices has been made [7], and a comparison on that basis shows:

TABLE IV

PROVINCIAL SHARES OF PERSONAL INCOME AND GNP

	Shares of	
	1963/64 gross personal income	1963/64 GNP at 1959/60 factor cost
	(........*per cent*........)	
East Pakistan	48.3	49.0
West Pakistan	51.7	51.0

East Pakistan's share of GNP would be slightly lower at current compared to constant 1959/60 prices. On the other side, corporate taxes and savings entries, which are included in the GNP but not in the personal income, amount to relatively more in West than in East Pakistan. As far as the distribution by provinces is concerned, the almost perfect consistency should increase the confidence in the personal income as well as in the GNP estimates.

V. REGIONAL DISTRIBUTION OF PERSONAL INCOME

Aggregate personal income for each of the four areas and their relative shares of the national total are shown in Table V. The distribution of this total by province appears in the bottom row, and that between rural and urban areas in the last column.

TABLE V

TOTAL PERSONAL INCOME, 1963/64

	East Pakistan	West Pakistan	All Pakistan
	(..............*in crores of rupees*............)		
Rural areas	1,730 (44.3%)	1,456 (37.2%)	3,186 (81.4%)
Urban areas	158 (4.0%)	568 (14.5%)	726 (18.6%)
Combined (rural and urban)	1,888 (48.3%)	2,024 (51.7%)	3,912 (100.0%)

These figures are obtained by blowing up each of the four samples on the basis of the population figures used for the per capita GNP estimates by province in 1963/64 [7, Pp. 200-202], the rural-urban population ratios of each province according to the 1961 Census of population [15], and the average number of persons per household in the respective areas as estimated in the Survey.

Urban personal income counts for less than one-fifth of the national total. In East Pakistan, the urban share comes to one-twelfth only, compared to one-third in West Pakistan.

In terms of per household and per capita income, the urban areas are far ahead of the rural. East Pakistan lags substantially behind West, except in the urban areas.

TABLE VI

AVERAGE PERSONAL INCOME PER CAPITA, 1963/64*

	East Pakistan	West Pakistan	All Pakistan
	(......*rupees per year*......)		
Rural	305	373	333
Urban	509	515	513
Combined	316	406	357

*Differences between the areas with regard to persons per household are taken care of in the computations. On the average, a household stands for 5.5 persons in the rural areas of both provinces, and for 5.7 in East urban and 5.9 in West urban.

The relative East-West disparity in per capita personal income turns out to be as follows:

	Rural areas	Urban areas	Combined rural & urban	GNP per capita 1963/64*
		...per cent. . . . .)		
East Pakistan in percentage of West Pakistan	**82**	99	7 8	78

• At 1959/60 factor cost.

It may be noticed that the *overall* disparity between the provincial per capita income is much higher than any of the *partial* disparities shown in our figures. There is almost no disparity between urban East and urban West, and for the rural areas separately, the per capita income in East is 18 per cent below that of West Pakistan but when we combine the rural and the urban areas, the overall disparity rises to 22 per cent. The higher overall disparity is a result of the rural areas' much larger share of the provincial income in East than in West Pakistan and the much higher per capita income in the urban than in the rural areas in both provinces.

The rural-urban disparity in personal income per capita, according to the estimates, works out as below:

	East Pakistan	*West Pakistan*	*All Pakistan*
Rural per capita income as % of urban	60	72	65

The rural-urban disparity in *factor* income per capita would be higher, because gross profit of corporations, which is included in GNP but not in the personal income, except for dividends, accrues primarily to the urban areas. Interest on national debt, which is included in private income (personal and corporate), but not in GNP, may have some offsetting effect.

Keith B. Griffin has, in his article [3, Pp. 606-608 and p. 628], related gross value added in agriculture to the rural population and called it rural income per capita, which then came to only 16 per cent of urban per capita income. He, thus, assumes that either no income accrues to rural population for their activities in nonagricultural sectors or that the rural population does not take any part in those activities[12]. This is incorrect. In fact, nonagricultural sectors, *e.g.,* transport, trade, small-scale industry and others, contribute substantially to the income of rural population.

12Griffin has mentioned cottage industry as the only sector that has been omitted.

VI. PERSONAL-INCOME DISTRIBUTION BY SIZE OF INCOME

Ranking the households according to the size of their monthly income and cumulating from the bottom the household frequencies of each income group, we get a relative distribution of households as shown in Table VII[13].

An area-to-area comparison of the frequency distribution columns should be subject to a few qualifications. In terms of welfare (however defined), a given household income does not mean exactly the same in each of the four areas, because of the differences in family size, regional prices and consumption patterns. Disregarding all these considerations for the moment, if we assume that a household income of 100 rupees a month represents the lower limit for subsistence, the figures tell that more than one-third of all households lie below the subsistence level. The ratio is two-fifth in East and one-fourth in West Pakistan. It is substantially lower in the urban areas than in the rural, but the number of urban households is so small compared to the rural, particularly in East Pakistan, that the ratios for combined rural-urban come close to those for the rural areas.

If we raise the limit to 150 rupees per household per month, almost two-thirds of all the households living in East Pakistan and one-half of those in West Pakistan, adding up to almost 60 per cent of the households in the country, lie below the limit. At the top income brackets we find only 0.6 per cent of the households above 900 rupees a month — 0.4 per cent in East and 0.9 in West Pakistan. We must go down to 400 rupees (or even slightly below that) in order to cover 5 per cent of all the households, (3.4 per cent only in East and 6.4 per cent in West) and down to 300 rupees to get 10 per cent.

Table VIII shows how much of the total personal income goes to the lowest 5 per cent of the households (lowest in terms of income per household), how much to the lowest 10 per cent, 20 per cent and so forth. The figures are derived from Appendix Tables A-1 to A-9, by interpolations.

The last column in the table shows that the lower half of the households in the country get about one-fourth of the total personal income. In other words, on the average their income per household is only one-third of the average income of the other half of the households. The top 5 per cent of the households get 20 per cent of the income, which means that they, on the average, are about five times as well off as the rest of the population.

13This is an extract from Appendix Tables A-1 to A-9.

TABLE VII

DISTRIBUTION OF HOUSEHOLDS BY INCOME GROUP

Cumulated percentage of total number of households, 1963/64

Monthly income per household in rupees	East Pakistan			West Pakistan			All Pakistan		
	Rural	Urban	Combined	Rural	Urban	Combined	Rural	Urban	Combined
upto 50	9.0	5.0	8.8	5.4	1.7	4.6	7.2	2.5	6.9
upto 100	42.8	28.3	41.5	28.5	15.7	25.7	35.6	18.6	34.3
upto 150	66.7	52.6	66.0	54.0	38.4	50.5	60.6	41.7	59.0
upto 200	82.2	65.3	81.3	71.8	57.4	68.5	77.1	59.2	75.5
upto 250	90.0	73.7	89.1	82.3	69.7	79.4	86.2	70.6	84.7
upto 300	94.2	80.8	93.5	89.3	78.4	86.5	91.8	78.9	90.3
upto 400	97.2	85.7	96.6	95.2	87.0	93.6	96.2	86.6	95.3
upto 500	98.6	90.2	98.2	97.1	91.7	96.0	97.5	91.3	97.2
upto 700	99.5	94.7	99.2	99.1	95.5	98.4	99.3	95.3	98.9
upto 900	99.8	96.7	99.6	99.6	93.3	99.1	99.7	97.2	99.4
upto infinity	100.0	100.0	100.0	100.0	100.0	100.00	100.0	100.0	100.0

TABLE VIII

INCOME SHARES OF ORDINAL GROUPS

Cumulated percentage of households	Cumulated percentage of total personal income, 1963/64								
	East Pakistan			West Pakistan			All Pakistan		
	Rural	Urban	Combined	Rural	Urban	Combined	Rural	Urban	Combined
Lowest 5% get	1.0	0.7	1.2	0.8	1.0	0.8	1.1	0.9	1.0
Lowest 10% get	3.5	1.5	2.7	2.3	2.5	2.3	2.5	2.2	2.5
Lowest 20% get	8.0	5.0	7.0	6.8	6.0	6.5	6.5	6.0	6.5
Lowest 30% get	13.0	9.0	12.0	12.0	11.0	11.5	12.0	10.0	11.5
Lowest 40% get	18.5	13.5	18.0	18.0	16.0	17.5	18.5	15.5	17.5
Lowest 50% get	26.0	19.0	24.5	26.0	21.5	24.5	26.0	21.0	24.5
Lowest 60% get	35.0	25.5	33.5	34.5	29.0	33.0	34.0	28.0	33.0
Lowest 70% get	45.0	33.0	43.5	44.5	38.5	43.0	44.5	37.0	42.5
Lowest 80% get	57.0	43.0	55.5	57.0	49.0	54.5	57.5	48.0	55.0
Lowest 90% get	73.0	59.5	71.5	72.0	63.5	69.5	72.5	63.0	70.0
Lowest 95% get	82.5	70.5	81.5	73.0	74.0	80.0	82.0	74.0	80.0
Lowest 100% get	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

The table also shows that a much higher degree of inequality exists in the turban areas than in the combined rural and urban areas.   The inequality is higher in urban East than in urban West Pakistan.   Out of the total urban personal income in the country, only one-fifth goes to the lowest half of the households, whereas the top 5 per cent get more than one-fourth.

When making comparisons of this kind between urban and rural areas, or between the two provinces, one should keep in mind the regional differences in average income per household.   Thus, even though the bottom half of the urban households get only 21 per cent of the urban personal income, whereas the bottom half of the rural households get 26 per cent of the rural income, the former are, on the average, better off than the latter.   Similarly, with the same relative share of the provincial total, the bottom half is on a lower level in East than in West Pakistan.

One implication of regional differentials in average income is that when combining two (or all the four) areas, the income distribution in the combined area may be more unequal or less unequal than the distribution within any of the two (or four) areas.

Figures 1, 2 and 3 are graphical illustrations, in terms of Lorenz curves, of the income distribution shown in Table VIII.   The cumulated household frequencies are measured along the X-axis and the corresponding cumulated, income shares along the Y-axis.

By definition, we have got perfect equality if every income-receiving unit gets the same income.   In this extreme case, the Lorenz curve will be a straight line coinciding with the diagonal.   If there is any inequality, then the curve must, at least from a certain point, lie below the diagonal.   Parts of the curve may still be straight lines, which would illustrate equal distribution within the corresponding ranges.

Our notion of inequality can be rationalized in a simple way by defining the degree of inequality as the area between the curve and the diagonal divided by the whole area below the diagonal, the so-called concentration ratio or Gini coefficient.   This ratio is to be regarded as an index of inequality shown in the curve and in the relevant columns of Table VIII.
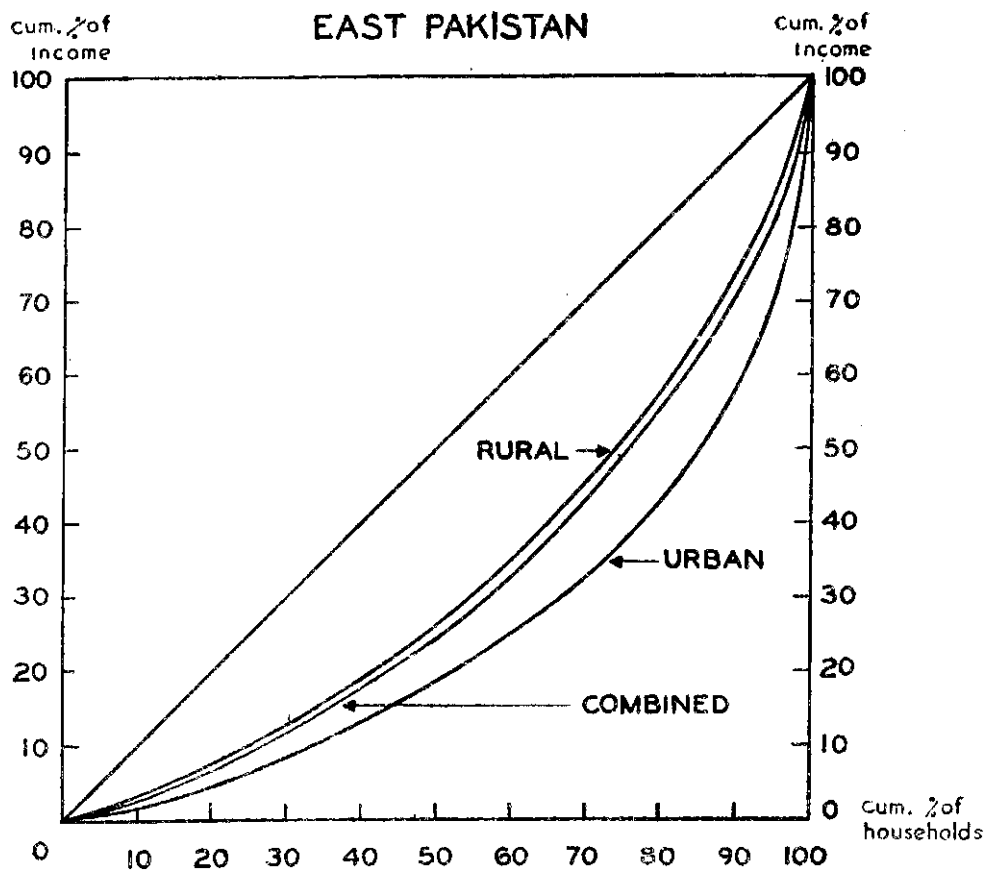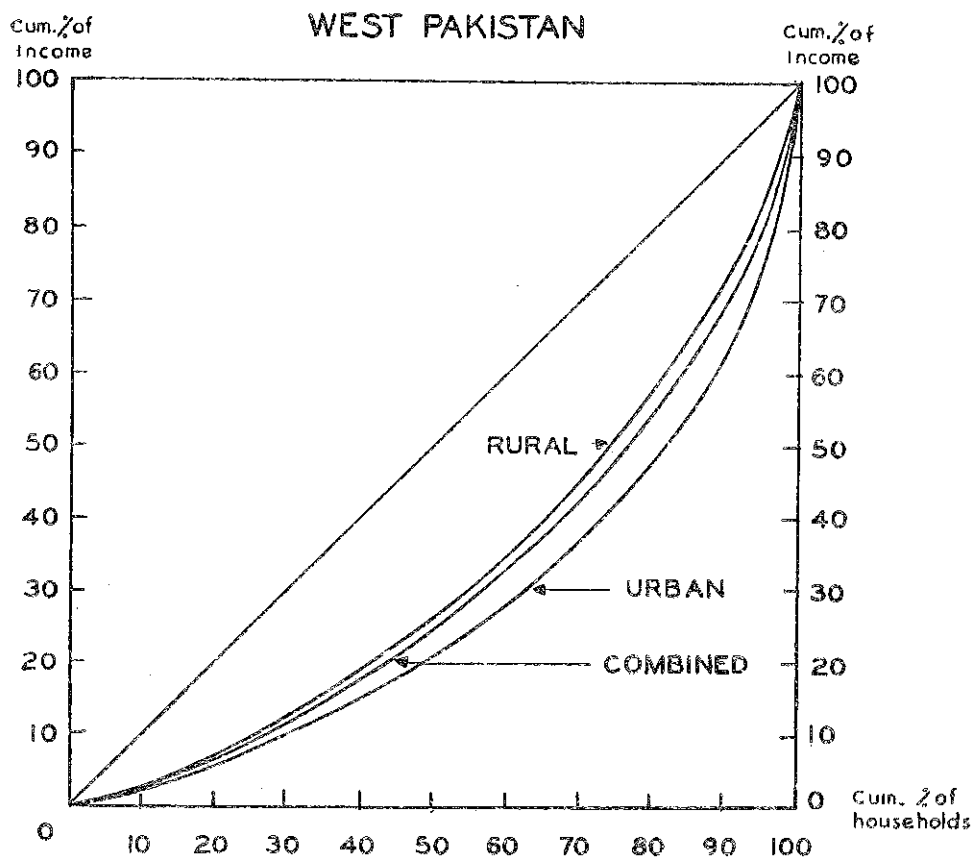
Figure 1. Personal Income Distribution
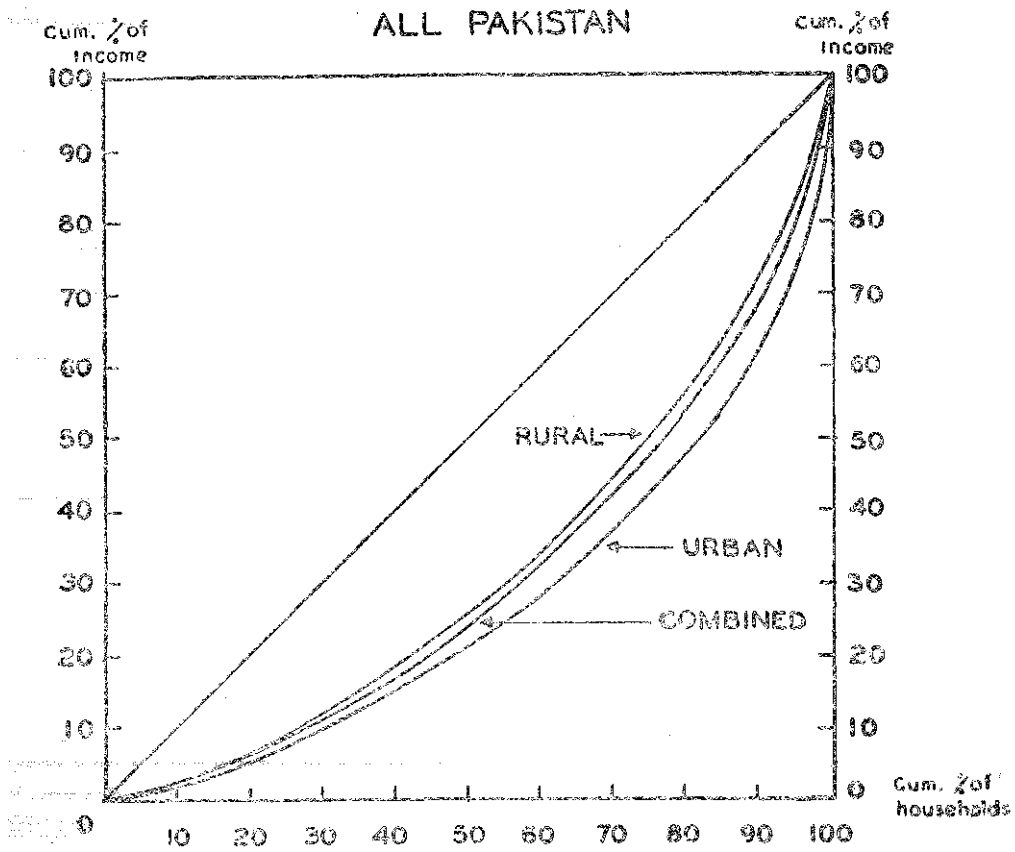
Figure 2. Personal Income Distribution

Figure 3. Personal Income Distribution

The concentration ratios corresponding to Table VIII and Figures
1, 2 and 3 are shown in Table IX below:

TABLE IX
CONCENTRATION RATIO, 1963/64

East Pakistan, rural areas	0.346
East Pakistan, urban areas	0.491
East Pakistan, combined	0.368
West Pakistan, rural areas	0.357
West Pakistan, urban areas	0.430
West Pakistan, combined	0.381
All Pakistan, rural areas	0.356
All Pakistan, urban areas	0.445
All Pakistan, combined	0.381

For the interpretation of the income distribution figures (and curves)
it must be noticed that the equality concept is automatically linked with the
definition of the income-receiving unit which, in this case, is the household.
Had the receiving unit been an individual, an income earner, a person in the
labour force, a tax-payer or something else, then the income distribution
would have been different. Any comparison of income distribution be-
tween countries or regions might be misleading unless the distribution figures
refer to the same income-receiving unit, *e.g.*, household. In case the base
units are different, a comparison must at least be duly qualified.

The Quarterly-Survey schedules which form the basic source of in-
formation for the present study also contain information on the number of
persons and number of earners in each household. There is a high correla-
tion between these two characteristics and even more so between the
household size and income. For the country as a whole, the average size of
household was 5.5 persons but it ranged from 2.4 in the very low to around
10 in the high income groups. The average number of earners per house-
hold came to 1.5, ranging from 1.1 to 2.3.

It is a matter of discussion which base unit might be the most
relevant for measuring income inequality. Any of the units readily available
for studies of this kind is open to criticism. In our case, the *household* was
the unit used in the basic material. The Quarterly Survey contains, how-
ever, additional information which would make it possible to analyse the
income distribution in terms of household income per capita or per earner.
Because of the correlations pointed out in the preceding paragraph, the
income distribution would appear to be less unequal if income per household
in the front column of Table VII were replaced by household income

per capita or per earner. Because of the limited time and resources for the present study we did analyse the income distribution on these bases. It may be doubtful whether it would have been worthwhile to do it either. Considering the lack of social security in the country, the relatively large households in the high income groups may, to a considerable extent, include poor relatives who normally should have constituted separate households. The more favourable income distribution picture we would have got, might, therefore, have been somewhat misleading, unless the distribution were interpreted in a very special way.

In Section IV, the per capita income was used for measuring the East-West Pakistan and the rural-urban disparities, because per capita income has been more commonly used for this purpose. The East-West disparity would come to almost the same if measured by income per household, because there is no mentionable difference with regard to average size of household between the two provinces.

Gross personal income figures in the present paper include direct taxes paid by the households. If direct taxes are deducted, we get (gross) *disposable* personal income. We have no basis for measuring the distribution of the disposable income in Pakistan. In general, a system of progressive direct taxes makes the income distribution more equal. Government transfers to households (negative direct taxes) add to the equalization. The income tax in Pakistan, which pertains to nonagricultural income only, is progressive — the tax rate itself is and the provisions about tax exemptions and deductible allowances are supposed to work in the same direction. Therefore, the *disposable* personal income in the urban areas of Pakistan, and hence in the country as a whole, would be a little more equally distributed than the personal income before taxes[14].

VII. PERSONAL INCOME IN PAKISTAN COMPARED TO OTHER COUNTRIES

We do not know of any estimates of income distribution in Pakistan that can be directly compared with the findings in the present paper. Mrs. Haq's article [4] is based on a study of a very small fraction of the population, accounting for not more than 0.5 per cent of the households in the country, or 5 per cent of the urban households[15] belonging to the highest income groups. The main concern of her study has been to show how the income of these people has been distributed among them. This is a minor detail in the context of the present study which deals with the whole popula-

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14Mrs. K. Haq [4, p. 626] seems to have drawn the opposite conclusions.

15"It covers only 0.1 per cent of the total population and about 1 per cent of the urban population" [4, p. 640], but we assume that one tax-payer by and large stands for one household.

tion and the distribution of their personal income.   To phrase it differently, her study is concerned with the shape of those parts of the *urban* curves in Figures i, 2 and 3 which, measured horizontally, run from 95 to 100, and her concentration ratios, *etc.,* relate only to those parts.   Relating her coverage to the *combined* rural-urban, the range she is concerned with goes from 99 to 100 only.   Any conceivable distribution within the range 95 to 100 *(cum* 99 to 100) would be compatible with any conceivable distribution within the range 0-95 (0-99).   Therefore, a comparison of her findings with those of the present study, which is concerned with the range 0-100, would be meaningless and misleading.   So also is any comparison between her results and income distribution in other countries if the latter cover much more than the upper 5 per cent of the urban population, whatever reservations one makes.

G. M. Farooq's mon6graph [2] contains figures on distribution of families in Karachi city by family income in 1959.   Assuming that the income-receiving unit "family" roughly corresponds to the household unit as defined in the Quarterly Survey, the income distribution pattern in Karachi, according to Farooq's findings, is not in conflict with the results of the present study.   But that is all we can say about it.   As he has pointed out in his paper, high income families have probably been missed out, so that the results with regard to inequality as well as to the median income per family are most likely too low.

Considerably more attention should be drawn to a comparison of the present study with studies of the same kind in other countries, preferably countries with similar economic and social structures.

A study undertaken by Ojha and Bhatt on the personal income distribution in India for the years 1953-57 was based on a household survey similar to the Quarterly Survey, but supplemented by a variety of other sources [10 ; 11].   The personal income concept in   the Ojha-Bhatt study was supposedly almost identical with that used in the present study, except that it may be net of depreciation.   The Ojha-Bhatt study ended up with a much more equal income distribution for the rural as well as for the urban households in India compared to our findings for Pakistan.   In terms of concentration ratios, their results were 0.31, 0.40 and 0.34 for rural, urban and All-India, respectively, compared to our 0.36, 0.45 and 0.38 for Pakistan.

The method used by Ojha and Bhatt for estimation of income has, however, been subject to criticism [9].   Contrary to the Surveys used in the present study, the Indian household survey did not provide income figures explicitly.   Ojha and Bhatt have assumed that the household expenditures

are equal to the disposable income, as far as households up to 3,000 rupees a
year are concerned. In other words, they assume zero savings in income
groups below that limit. As pointed out by Mueller and Sarma [9], a
household sample survey of urban income and savings, conducted by the
National Council of Applied Economic Research of New Delhi (NCAER)
[5] in 1960 showed substantial negative savings in the lower income groups,
e.g., a savings rate of (—) 20.6 per cent in the disposable household incomes
below 1,000 rupees a year. The concentration ratio obtained by the
NCAER for urban India 1959/60 was as high as 0.51 as compared to the
Ojha-Bhatt ratio of 0.40 for 1953-57 for urban India and our 0.45 for urban
Pakistan (1963/64). The ratio for urban East Pakistan, 0.49, comes close to
the NCAER findings for All India urban.

The Quarterly-Survey data for Pakistan seem to support the contention
that Ojha-Bhatt assumption is unrealistic. There *is* dissaving in the lowest
income groups. In addition, the marginal rate of savings in these low
income brackets is not zero either, which the Ojha-Bhatt assumption for
India implies, but far above zero.

There is, though, a striking agreement between Ojha-Bhatt findings
for India and our findings for Pakistan with regard to rural vs. urban income
inequality. The alleged underestimation in Ojha-Bhatt study has probably
not had any considerable impact on the rural-urban "disparity" in concent-
ration ratios. Since these disparities are substantial in India as well as in
Pakistan, and since economic development as conceived in both countries
involves urbanization, one should expect that the inequality of the income
distribution for All India and for All Pakistan will increase over time if the
partial (rural and urban) inequalities remain unchanged. Measures to
decrease the inequality in the urban areas would, thus, be required to avoid
an *increase* in the overall income distribution inequality. If one aims at an
overall *decrease* in the inequality, the measures must of course be much
stronger.

Comparisons with a number of other countries are shown in Table X
below.

TABLE X

CONCENTRATION RATIOS FOR PERSONAL INCOME

Country	Overall	Urban
Pakistan, 1963/64	0.38	0.45
India, 1953/54—1956/57	(0.34)	(0.40)1 0.512
Ceylon, 1952/53	0.42	
Average of Ceylon, 1952/53, 1950 and 1957 ⎫ Above 0.47		
Mexico/Barbados, 1951/52 and Puerto Rico, 1953 ⎭		
United Kingdom, 1951/52	0.33	
West Germany, 1950	0.45	
United States, 1950	0.35	
Italy, 1948	0.40	

1Ojha-Bhatt estimate.   *Source:* Regarding figures for other countries than
2NCAER estimate.   Pakistan and India, Ojha and Bhatt [11].

Comparisons of income distribution, in terms of concentration ratios between countries like Pakistan, India and Ceylon on the one side and the United Kingdom, the United States and others on the other side are, in fact, not very meaningful. Income distribution in a poor country is a subject different from the income distribution in a rich country, except for the methods and formulae used for measuring inequality.

VIII. PERSONAL INCOME BY SOURCE (FUNCTIONAL DISTRIBUTION)

The Quarterly Survey contained information about sources of income, which in Table XI have been consolidated into five categories. The table shows how much each of these five sources has contributed to the personal income[16].

TABLE XI

DISTRIBUTION OF PERSONAL INCOME BY SOURCE, 1963/64

	Wages and salaries	Self-employment in agriculture	Self-employment in non-agriculture	Rent, interest, dividends	Other sources	Total
East Pakistan (rural)	18.2	43.3	9.0	5.9	23.6	100
East Pakistan (urban)	44.2	5.8	30.1	7.5	12.4	100
East Pakistan (combined)	20.4	40.2	10.8	6.0	22.6	100
West Pakistan (rural)	15.1	49.2	6.9	4.9	23.9	100
West Pakistan (urban)	55.6	4.1	24.9	5.8	9.6	100
West Pakistan (combined)	26.5	36.5	12.0	5.1	19.9	100
All Pakistan (rural)	16.8	46.0	8.0	5.5	23.7	100
All Pakistan (urban)	53.1	4.5	26.0	6.2	10.2	100
All Pakistan (combined)	23.5	38.3	11.4	5.6	21.2	100

16The specification differs from the one used in tables in the CSO's publication. The most important difference is that "other sources" in Table XI do not include borrowings, sale of property and savings withdrawals.

A substantial part of the unspecified "other sources", which count for more than one-fifth of the total income for the country as a whole, should most likely have been allocated to the other four sources. Recalling the discussion in Section II about the various income components, we suppose that, *e.g.,* "regular contributions from sons and daughters staying elsewhere" to a large extent consist of wages and salaries which did not show up as such in the survey. These regular contributions may partly explain the high figures for "other sources" in the rural areas compared to the urban. In addition, we suppose that in case there has been some doubt whether an income should be regarded as wages or self-employment income or something else, it has wrongly been put into "other sources". Transfers from the government should probably have been the main item left under "other sources", if the allocation were done correctly.

The wage component, as shown in Table XI, may, for these reasons, have been grossly understated. But even with a proper adjustment, the wage component would still have been low compared to the wage component in more industrialized countries, and perhaps still almost three times as high in the urban as in the rural areas. A comparison of the wage components in Pakistan with those in a number of other countries appears in Appendix Table A-17.

Appendix Tables A-10 to A-16 show the personal income by source for each income group, separately for each area. As should be expected, the wage component is relatively much larger in the lowest income groups than in the middle and high groups, particularly in the rural areas.

IX. SAVINGS

Personal saving is by definition disposable *(i.e.,* post-tax) personal income less consumption expenditures. The gross personal-income figure in the present paper is not disposable income, but personal income before taxes. The household expenditures as they appear in the Quarterly-Survey schedules include direct taxes (they are included in miscellaneous expenditures). So, if we deduct from our personal-income estimates the household expenditures, and add "gifts and assistance" which were excluded from the income *(see* Section VI), we should get *gross personal savings*[17].

Expressed in savings rates the amount of savings should be related to disposable income and not to personal pre-tax income. Since the information available does not allow that, the savings rates we have worked out relate to income before taxes[18]. If related to disposable income, the rates would have been a little higher.

17Net of taxes, but gross of depreciation, if any.
18Including **gifts and** assistance.

As pointed out in Section I of this paper, the savings estimates that can be calculated on the basis of the survey income and expenditure data are very sensitive to relatively small errors in the income and/or the expenditure figures. In the survey data there might be substantial errors on both sides. For these reasons, the aggregate personal savings rates, which are presented in Table XII below, are very doubtful.

TABLE XII

GROSS PERSONAL SAVINGS, 1963/64

Region	Gross personal savings	
	Per year	% of gross personal income (before taxes)
	(crore rupees)	*(per cent)*
East Pakistan, rural areas	207.6	12.0
East Pakistan, urban areas	15.6	9.9
East Pakistan, combined	223.2	11.8
West Pakistan, rural areas	139.5	9.2
West Pakistan, urban areas	38.1	6.7
West Pakistan, combined	177.8	8.8
All Pakistan, rural areas	347.1	10.9
All Pakistan, urban areas	53.7	7.4
All Pakistan, combined	400.8	10.2

For that part of the urban personal income in the highest income group which was based on the income tax data, there was no information available about savings. We have applied an average savings rate of 35 per cent for these incomes which may be an underestimation. The savings rate for the survey incomes above 900 rupees a month was around 30 per cent in both of the urban areas, and these incomes were, on the average, much lower than the incomes incorporated on the basis of the tax data. ·

Personal saving is not the same as *private* saving, which also includes private corporate saving. If we assume that all the corporations are located in the urban areas and that private corporate saving amounted to 52 crore rupees according to the estimate used in the reconciliation account in Section IV, the *gross private* saving in the All-Pakistan urban areas would come to 105.7 crore rupees. This private saving amount, related to gross private income (personal income plus corporate retained earnings and direct corporate taxes), gives a rate of private urban saving of 12.8 per cent.

The picture we get of private saving would then be as follows:

TABLE XIII

GROSS PRIVATE SAVINGS, 1963/64

Region	Gross private savings	
	per year	% of gross private income
	(crore rupees)	*(per cent)*
Pakistan, rural areas	347.1	10.9
Pakistan, urban areas	105.7	12.8
Pakistan, combined	452.8	11.3

The major part of the corporate profit accrues to West Pakistan. On the assumption that corporate retained earnings are divided between East and West Pakistan in about the same ratio as the urban population of the country, we would get the following results.

TABEL XIV

GROSS PRIVATE SAVINGS, 1963/64

Region	Gross private savings	
	per year	% of gross private income
	(crore rupees)	*(per cent)*
East Pakistan, rural areas	207.6	12.0
East Pakistan, urban areas	24.4	13.9
East Pakistan, combined	232.0	12.2
West Pakistan, rural areas	139.5	9.2
West Pakistan, urban areas	81.3	12.5
West Pakistan, combined	220.8	10.5
All Pakistan, rural areas	347.1	10.9
All Pakistan, urban areas	105.7	12.8
All Pakistan, combined	452.8	11.3

To repeat it once more, we think that the corporate gross profit figures are on the low side and also that the personal income and savings figures for West Pakistan urban areas in the high income groups are too low. If that is true, our urban savings figures for West Pakistan, and hence the West combined and the All Pakistan urban and combined, are too low.

However, even if urban savings have been grossly understated in our calculations, the rural areas would still appear to have contributed at least three-fourths of the total private savings in the country. East Pakistan with its much lower total income has, according to these figures, saved at least as much as West Pakistan in absolute amount and more than West in terms of savings rates.

The most striking feature, which calls for further examination, is the high savings rate in the poorest of all the four areas, namely rural East Pakistan. One possible explanation is that 1962/63 was a bad crop year and also a year of natural disaster, whereas 1963/64 was a very good crop year, which enabled the farmers to build up again inventories, livestocks, wells, implements, *etc*[19]. In other words, their savings may have been extraordinary high in 1963/64 in order to meet reinvestments which were badly needed for their future subsistence. This possible explanation under-lines the warning that the results for one year cannot be applied to other years.

A proper study on private savings should, of course, include an analysis of savings rate by income groups, and other important details. The Quarterly-Survey data could have been arranged in such a way that savings could be estimated separately for each income group, but it would have required time and resources beyond the limit we had to set for the present study.

By adding government savings to gross private savings in the country we get *total gross domestic savings*. This total related to the GNP at market price (GNP at factor cost plus indirect taxes net of subsidies) would show the overall gross domestic savings rate for the country. Because of the unexplained balance in the reconciliation account shown in Section IV, the personal-income estimate must be raised by 2.7 per cent and the personal-savings figures be increased correspondingly before we add up the total savings and relate it to GNP. An examination of government savings and, thus, also of total savings is beyond the scope of the present paper[20]. If we, for illustration, adopt the Planning Commission estimate of government savings for 1964/65, 1.7 per cent of GNP at market price, and also the ratio of GNP at market price to GNP at factor cost for 1964/65 implicit in the Planning Commission figures [14, Pp. 62 and 64], and apply these ratios to 1963/64, our estimate of the overall gross domestic savings rate would be 12.5 per cent of GNP at market price, compared to the Planning Commis-sion's estimate of 10.3 per cent.

19This point was made by Dr. T. M. Khan.

20Government saving in Pakistan is not an unambiguous concept, because the definition depends on the distinction between current (noninvestment) and investment development expenditures.

Perhaps the main conclusion to be drawn from this paper is that the present basis for studies of income distribution and savings in Pakistan is too weak. Considering the economic planners' need for better information in these fields it is important to improve the basis. The framework of the Quarterly Surveys should be recast and the schedules as well as the instructions be carefully revised for this purpose. Details which are not essential for such analysis of income, consumption and savings which are crucial for economic planning, should be omitted. That might improve the quality of the data, facilitate the collecting and processing, and increase the possibility to get consistent time-series in the future.

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Appendix

A NOTE OF IMPUTED FARM INCOME

1. The problem of evaluating income in kind in money terms arises in various sectors of the economy, but particularly in agriculture. Usually the farmer keeps for own consumption some quantities of the goods he has produced. As pointed out in Section IV, the farmer's home-produced and home-consumed food has, in the official GNP estimation, been evaluated at wholesale price at the time of harvest, whereas the Quarterly Survey in principle has used the local "prevailing retail market prices", on the income as as well as on the consumption expenditure side. That means that in the GNP estimates the imputed farm income is the money income the farmers have foregone by retaining these quantities for own consumption instead of selling them at wholesale prices at the time of harvest, whereas in the Quarterly Survey the imputed farm income should be equal to the expenditures that would have been incurred if the goods were to be purchased at retail market prices at the time of consumption. There is no objective basis for saying that the one principle is wrong and the other is right, but may be the one is more relevant than the other one for this or that purpose, *e.g.*, for measuring personal-income distribution, which is the main subject of the present study. From that point of view the issue will be discussed below.

2. In the following analysis the quantity of the farmer's production is X_T. The wholesale price at the time of harvest is p_w, the prevailing local retail market price p_r, and the price the farmer has to pay for other goods and services which he consumes, is q_r. His consumption of farmer's goods (the kind of goods he produces himself) is x, and his consumption of other goods and services is y. Quantities and prices should here be conceived of as indexes, comprising all the relevant goods and services.

The farmer is supposed to spend all his income on x and y. Savings are, thus, disregarded, but this simplification has no impact on the results of the analysis.

3. The farmer's budget equation depends on how he disposes the quantity X_T. There are three distinct alternatives which are of particular interest for the income evaluation problem:

4. *Alternative I*: The farmer sells the total quantity X_T at wholesale price p_w and purchases the same kind of goods for own consumption at retail price p_r, like a nonfarmer. His budget equation is in this case

$X_T \cdot p_w = x \cdot p_r + y \cdot q_r$. The slope of his budget line is in other words represented by the coefficient $(-) \dfrac{p_r}{q_r}$. The budget line is illustrated in Figure 4 as AB. According to the farmer's consumption preference chart, which is indicated in the figure, his consumption will in this case be (x_1, y_1). This alternative may be realistic for poor farmers who, for liquidity or other reasons, are compelled to market their total crops at the time of harvest instead of withholding quantities which they will need for own consumption till the next harvest. (This is, incidentally, a realistic alternative also in developed countries with highly mechanized and specialized agriculture, but for completely different reasons.)

5. *Alternative II:* The farmer retains the quantity required for own consumption and sells the rest of the crop at the wholesale price p_w. His budget equation is now $(X_T - x) \cdot p_w = y \cdot q_r$,

or

$$X_T \cdot p_w = x \cdot p_w + y \cdot q_r.$$

In this case the budget line is characterised by the coefficient $(-) \dfrac{p_w}{p_r}$ and illustrated in the figure as TB. We are inclined to regard this alternative as the "normal". With the indifference curves indicated in the figure, his consumption will now be (x_2, y_2).

6. *Alternative III:* The farmer does not sell anything at wholesale price. He undertakes the storing and the retail trade business himself. What he does not consume, he sells at retail prices during the period of time up to the next harvest. We are then faced with this budget equation:

$$(X_T - x) \cdot p_r = y \cdot q_r$$

or

$$X_T \cdot p_r = x \cdot p_r + y \cdot q_r.$$

His budget line is characterised by the same coefficient as under Alternative I, namely $(-)\, p_r/q_r$, and illustrated in the figure by TC. But this budget line is located more to the "North-East" in the figure than the Alternative I budget line. The farmer's consumption under Alternative III is indicated by (x_3, y_3).

7. It should be noticed that the budget line III is superior to II, in terms of welfare to the farmer, and II is again better than I. This is so regardless of how we might evaluate in money terms that part of the farmer's production which he consumes himself. So far we have not even introduced any such evaluation. The various assumptions on which the three alternatives rest, refer to the farmer's total production, his consumption

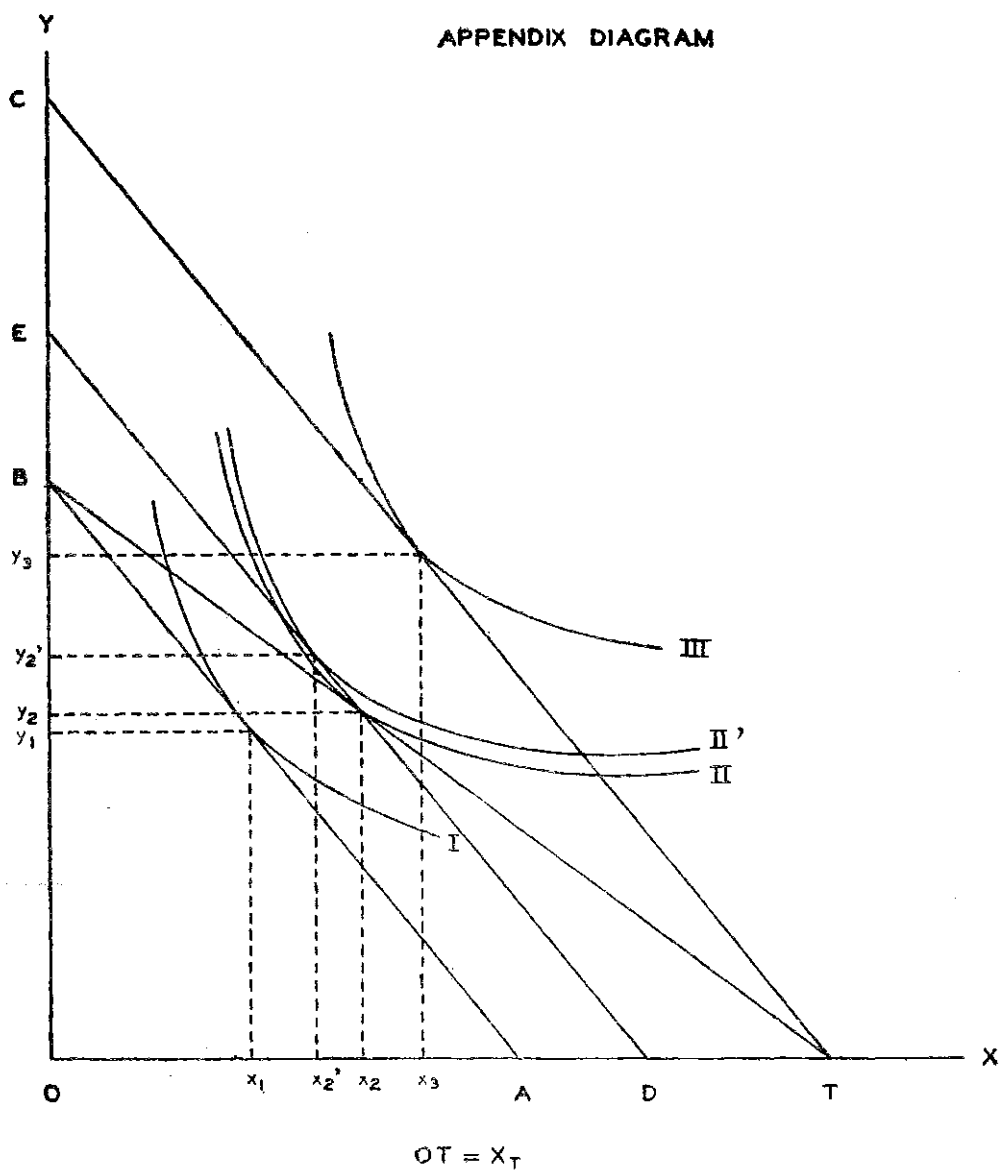APPENDIX DIAGRAM

$OT = X_T$

Figure 4.

preferences and sales policy and to the prices actually realized in the market, but not to any imported income.

8. We now turn to the specific evaluation problem, which can be phrased as follows: which price (or prices) should be used for measuring the value of X_T in such a way that this value represents the "true" income of the farmer. Or it could be formulated like this: which prices should be used for measuring the values of the possible (x, y) combinations along the three budget lines. There is no unambiguous interpretation of "true" income in money terms when a part of the income is in kind. But for the purpose of measuring the income distribution, the following criterion seems reasonable:

The money income that would give the farmer the same welfare as he gets out of his actual mixed income—in other words the money income which would enable him to reach the same consumption indifference curve, should be the farmer's "true" income in money terms.

On this background we will now examine further each of the three alternatives.

9. *Alternative I:* In this case the farmer does not retain anything of his production for own consumption. The money income he actually gets is in the Quarterly Survey supposed to show up as his total income. The problem of imputed income does not exist under this alternative. The farmer's total production X_T is automatically evaluated at the price p_w on the income side. His consumption expenditure account shows, on the other side, the actual cost of the consumer's goods and services he has purchased. The farmer's consumption of agricultural goods under Alternative I is, thus, evaluated at p_r. The farmer's budget line coincides with the budget line of a nonfarmer who has the same money income and pays the same prices for the goods and services he purchases for consumption.

10. *Alternative II:* Under this alternative the farmer retains x_2 for own consumption. As we have already pointed out, this will be independent of how we evaluate his income in money terms. If we now use the retail price p_r for imputation his total income will be $(X_T—x_2) . p_w+x_2. p_r$. It will be seen that this income depends on the choice he already has made with regard to his consumption, according to his budget line and preference chart. With a different preference chart he would have chosen another point on his budget line, either to the right of (x_2, y_2), which would have resulted in a higher imputed income, or to the left of (x_2, y_2), which would have reduced the imputed income. This is to say that the farmer's income in money terms varies along one and the same budget line TB when the

income in kind, namely x, is evaluated at the retail price. The budget line AB under alternative I stands for a constant income, but the budget line TB under alternative II does not. A nonfarmer with a money income equivalent to $(X_T - x_2) \cdot p_w + x_2 \cdot p_r$ is faced with another budget line, namely DE, which intersects the farmers line TB at the point (x_2, y_2) and is parallel to AB and TC. The slope of DE is represented by $(-) \dfrac{p_r}{q_r}$, because the right side of the nonfarmer's budget equation is $x \cdot p_r + y \cdot q_r$ whereas the slope of TB is $(-) \dfrac{p_w}{q_r}$. If the nonfarmer has the same preference structure as the farmer, he will be able to reach a higher indifference curve, as shown in the figure. The nonfarmer's consumption is indicated by (x_2', y_2'). The farmer could have reached this indifference curve if he were able to sell the quantity $(x_2 - x_2')$ at retail price p_r, but that contradicts our assumptions under this alternative.

On the other side, if we apply the wholesale price p_w for the imputed part of the farmer's income, then his total income in money terms will be $X_T \cdot p_w$, which means that we put in on the same income level as a nonfarmer with a budget line AB. But AB is tangent to a lower indifference curve than TC is. AB is inferior to the farmer's actual budget line TC. In fact, by using the wholesale price for the imputed income, we disregard the value which the farmer adds by storing that part of his production which he will need for later consumption.

Recalling the welfare criterion as laid down in paragraph 8 above, we reach the following conclusion as far as Alternative II, which we have assumed to be the "normal" alternative, is concerned: the farmer's income is somewhat overevaluated when the retail price is being used for evaluating the part of the income which consists of own-produced and own-consumed goods. In the example indicated in the figure the overevaluation can be measured as $(x_2 - x_2') \cdot (p_r - p_w)$. This will be the additional money income required to replace the consumption (x_2, y_2) by (x_2', y_2'), *i.e.*, to move from the indifference curve II to II'. On the other side, when the wholesale price is being used for the imputed income, there is some underevaluation, which in the example in the figure can be measured as $(x_2 - x_1) \cdot p_r + (y_2 - y_1) \cdot q_r - (x_2, x_2') \cdot (p_r - p_w)$. This will be the additional money needed for replacing (x_1, y_1) by (x_2, y_2), *i.e.*, for moving from the indifference curve I to II.

As the curves are drawn in our figure, the underevaluation of income in money terms by measuring the imputed part of the income at wholesale price exceeds the overevaluation by applying the retail price. This will also be the normal case. No similar statement can, however, be made with

regard to the differences in welfare, because we have no way to get a quantitative measure of welfare. The indifference chart indicates only the farmer's preferences with regard to the location of (x,y) in the figure. The chart tells us that II' represents "more" welfare than II, which again gives more welfare than I, but it does not tell *how much* more. With these reservations we would still say that the results of the analysis support the view that it seems more reasonable to evaluate the income that stems from own-produced and own-consumed goods at retail rather than at wholesale price.

11. *Alternative III:* Under Alternative III, where the farmer sells his product at retail prices, the money income he foregoes by retaining some quantities for own consumption, is exactly those quantities multiplied by the retail prices. That is to say that if we apply retail prices for the home-produced and home-consumed goods, we put the farmer on the same income level as a nonfarmer who is faced with an equivalent money income and the purchasing prices p_r and q_r for his consumption. If we here evaluate the farmer's own consumption at wholesale prices, which seems to be a very artificial procedure in this case, we put him at an income level which for a nonfarmer would be represented by the budget equation:

$$(X_T - x) \cdot p_r + x \cdot p_w = x \cdot q_r + y \cdot q_r.$$

This budget line would be characterized by the coefficient $(-)\dfrac{2p_r - p_w}{q_r}$. The line would be steeper than any of the three actual budget lines of the farmer. We have not drawn it in the figure, but it would go from C at the Y-axis to somewhere between A and T on the X-axis.

12. In our simple models we have not introduced any cost of production explicitly. The value of the total production has been taken as synonymous with value added by the farmer. We have disregarded the fact that the farmer has used inputs like fertilizers, seed, hired labour, *etc.*, which he has to pay for. Production cost can, however, easily be incorporated in our models, but the content of our conclusions would remain unchanged.

13. Also storing and trade undertaken by the farmer may have required inputs which the farmer has had to pay for, whereas we in our analysis have regarded all the value of his storing and trade as value added by him, and consequently as income to him. How much additional income he gets by storing and trading, depends, as has been shown in the foregoing paragraphs, on the discrepancy between retail and wholesale prices and the farmer's disposal of the X_T. Here, again the introduction of storing and trade cost would not have altered our conclusions.

Appendix A

TABLE A-1

EAST PAKISTAN RURAL AREAS

PERSONAL-INCOME DISTRIBUTION, 1963/64

Monthly income per household in rupees	Number of households by income size		Share of income		Shares of ordinal groups	
	Percentage	Cumulated percentage	Percentage	Cumulated percentage	Households	Income
Below 50	9.0	9.0	2.3	2.3	Bottom 5% get	1.5%
50 upto 100	33.2	42.2	17.9	20.2	Bottom 10% get	3.5%
100—150	24.5	66.7	21.3	41.5	Bottom 20% get	8.0%
150—200	15.5	82.2	19.0	60.5	Bottom 30% get	13.0%
200—250	7.8	90.0	12.4	73.0	Bottom 40% get	18.5%
250—300	4.2	94.2	8.3	81.3	Bottom 50% get	26.0%
300—400	3.0	97.2	7.2	88.5	Bottom 60% get	35.0%
400—500	1.4	98.6	4.5	93.0	Bottom 70% get	45.0%
500—700	0.9	99.5	3.7	96.7	Bottom 80% get	57.0%
700—900	0.3	99.8	1.5	98.2	Bottom 90% get	73.0%
900 and above	0.2	100.0	1.8	100.0	Bottom 95% get	82.5%
					100% get	100.0%
Total:	100.0		100.0			

Concentration ratio = 0.346

Total personal income per month	Rs. 144.2 crores
Total personal income per year	Rs. 1,730 crores
Total number of households in thousands	10,306
Average income per household per month	Rs. 140
Average income per household per year	Rs. 1,678
Average number of persons per household	5.5 persons
Average income per capita per month	Rs. 25.43
Average income per capita per year	Rs. 305

TALE A-2

EAST PAKISTAN URBAN AREAS

PERSONAL-INCOME DISTRIBUTION, 1963/64

Monthly income per household in rupees	Number of households by income size		Share of income		Shares of ordinal groups	
	Percent-age	Cumulat-ed percentage	Percent-age	Cumulat-ed percentage	Households	Income
Below 50	5.0	5.0	0.7	0.7	Bottom 5% get	0.7%
50 upto 100	23.3	28.3	7.4	8.1	Bottom 10% get	1.5%
100—150	24.3	52.6	12.1	20.2	Bottom 20% get	5.0%
150—200	12.7	65.3	8.8	29.0	Bottom 30% get	9.0%
200—250	8.4	73.7	7.6	36.6	Bottom 40% get	13.5%
250—300	7.1	80.8	7.5	44.1	Bottom 50% get	19.0%
300—400	4.9	85.7	7.8	51.9	Bottom 60% get	25.5%
400—500	4.5	90.2	7.9	59.8	Bottom 70% get	33.0%
500—700	4.5	94.7	10.3	70.1	Bottom 80% get	43.0%
700—900	2.0	96.7	6.8	76.9	Bottom 90% get	59.5%
900 and above	3.3[a]	100.0	23.1[b]	100.0	Bottom 95% get	70.5%
					100% get	100.0%
Total:	100.0		100.0			

Concentration ratio = 0.491

Total personal income per month	Rs. 13.2 crores
Total personal income per year	Rs. 158 crores
Total number of households in thousands	544
Average income per household per month	Rs. 251.78
Average income per household per year	Rs. 2901
Average number of persons per household	5.7 persons
Average income per capita per month	Rs. 42.42
Average income per capita per year	Rs. 509

[a]0.5 of which has been added on the basis of income-tax data.
[b]7.5 of which has been added on the basis of income-tax data.

TABLE A-3

EAST PAKISTAN RURAL AND URBAN AREAS COMBINED
PERSONAL-INCOME DISTRIBUTION, 1963/64

Monthly income per household in rupees	Number of households by income size		Share of income		Shares of ordinal groups	
	Percent-age	Cumulat-ed per-centage	Percent-age	Cumulated percentage	Households	Income
Below 50	8.8	8.8	2.2	2.2	Bottom 5% get	1.2%
50 upto 100	32.7	41.5	17.0	19.2	Bottom 10% get	2.7%
100—150	24.5	66.0	20.5	39.7	Bottom 20% get	7.0%
150—200	15.3	81.3	18.2	57.9	Bottom 30% get	12.0%
200—250	7.8	89.1	12.0	69.9	Bottom 40% get	18.0%
250—300	4.4	93.5	8.2	78.1	Bottom 50% get	24.5%
300—400	3.1	96.6	7.3	85.4	Bottom 60% get	33.5%
400—500	1.6	98.2	4.8	90.2	Bottom 70% get	43.5%
500—700	1.0	99.2	4.2	94.4	Bottom 80% get	55.5%
700—900	0.4	99.6	2.0	96.4	Bottom 90% get	71.5%
900 and above	0.4	100.0	3.6*a*	100.0	Bottom 95% get	81.5%
					100% get	100.0%
Total:	100.0		100.0			

Concentration ratio = 0.368

Total personal income per month	Rs. 157.3 crores
Total personal income per year	Rs. 1,888 crores
Total number of households in thousands	10,850
Average income per household per month	Rs. 145
Average income per household per year	Rs. 1,740
Average number of persons per household	5.5 persons
Average income per capita per month	Rs. 26.26
Average income per capita per year	Rs. 316

*a*0.6 of which has been added on the basis of income-tax data.

TABLE A-4
WEST PAKISTAN RURAL AREAS

PERSONAL-INCOME DISTRIBUTION, 1963/64

Monthly income per household in rupees	Number of households by income size		Share of income		Shares of ordinal groups	
	Percentage	Cumulated percentage	Percentage	Cumulated percentage	Households	Income
Below 50	5.4	5.4	1.0	1.0	Bottom 5% get	0.8%
50 upto 100	23.1	28.5	10.0	11.0	Bottom 10% get	2.3%
100—150	25.5	54.0	18.1	29.1	Bottom 20% get	6.8%
150—200	17.8	71.8	17.6	46.7	Bottom 30% get	12.0%
200—250	10.5	82.3	13.5	60.2	Bottom 40% get	18.0%
250—300	7.0	89.3	10.7	70.9	Bottom 50% get	26.0%
300—400	5.9	95.2	12.6	83.5	Bottom 60% get	34.5%
400—500	1.9	97.1	4.8	88.3	Bottom 70% get	44.5%
500—700	2.0	99.1	7.1	95.4	Bottom 80% get	57.0%
700—900	0.5	99.6	2.1	97.5	Bottom 90% get	72.0%
900 and above	0.4	100.0	2.5	100.0	Bottom 95% get	83.0%
					Bottom 100% get	100.0%
Total:	100.0		100.0			

Concentration ratio = 0.357

Total personal income per month	Rs. 121.3 crores
Total personal income per year	Rs. 1,456 crores
Total number of households in thousands	7,099
Average income per household per month	Rs. 170.92
Average income per household per year	Rs. 2051
Average number of persons per household	5.5 persons
Average income per capita per month	Rs. 31.08
Average income per capita per year	Rs. 373

TABLE A-5

WEST PAKISTAN URBAN AREAS

PERSONAL-INCOME DISTRIBUTION, 1963/64

Monthly income per household in rupees	Number of households by income size		Share of income		Shares of ordinal groups	
	Percent-age	Cumulat-ed per-centage	Percentage	Cumulat-ed per-centage	Households	Income
Below 50	1.7	1.7	0.3	0.3	Bottom 5% get	1.0%
50 upto 100	14.0	15.7	4.3	4.6	Bottom 10% get	2.5%
100—150	22.7	38.4	11.0	15.6	Bottom 20% get	6.0%
150—200	19.0	57.4	11.3	26.9	Bottom 30% get	11.0%
200—250	12.3	69.7	11.0	37.9	Bottom 40% get	16.0%
250—300	8.7	78.4	8.9	46.8	Bottom 50% get	21.5%
300—400	8.6	87.0	12.6	59.4	Bottom 60% get	29.0%
400—500	4.7	91.7	7.9	67.3	Bottom 70% get	38.5%
500—700	3.8	95.5	8.4	75.7	Bottom 80% get	49.0%
700—900	1.8	97.3	5.4	81.1	Bottom 90% get	63.5%
900 and above	2.7a	100.0	18.9b	100.0	Bottom 95% get	74.0%
					Bottom 100% get	100.0%
Total :	100.0		100.0			

Concentration ratio = 0.430

Total personal income per month	Rs. 47.3 crores
Total personal income per year	Rs. 568 crores
Total number of households in thousands	1,871
Average income per household per month	Rs. 252.95
Average income per household per year	Rs. 3,035
Average number of persons per household	5.9 persons
Average income per capita per month	Rs. 42.87
Average income per capita per year	Rs. 515

a0.9 of which has been added on the basis of income-tax data.
b10.0 of which has been added on the basis of income-tax data.

TABLE A-6

WEST PAKISTAN RURAL AND URBAN AREAS COMBINED

PERSONAL-INCOME DISTRIBUTION, 1963/64

Monthly income per household in rupees	Number of households by income size		Share of income		Shares of ordinal groups	
	Percent-age	Cumulat-ed per-centage	Percent-age	Cumulat-ed per-centage	Households	Income
Below 50	4.6	4.6	0.7	0.7	Bottom 5% get	0.8%
50 upto 100	21.1	25.7	8.4	9.1	Bottom 10% get	2.3%
100—150	24.8	50.5	16.0	25.1	Bottom 20% get	6.5%
150—200	18.0	68.5	16.1	41.2	Bottom 30% get	11.5%
200—250	10.9	79.4	12.7	53.9	Bottom 40% get	17.5%
250—300	7.1	86.5	10.0	63.9	Bottom 50% get	24.5%
300—400	7.1	93.6	12.6	76.5	Bottom 60% get	33.0%
400—500	2.4	96.0	5.7	82.2	Bottom 70% get	43.0%
500—700	2.4	98.4	7.5	89.7	Bottom 80% get	54.5%
700—900	0.7	99.1	3.0	92.7	Bottom 90% get	69.5%
900 and above	0.9a	100.0	7.3b	100.0	Bottom 95% get	80.0%
					Bottom 100% get	100.0%
Total:	100.0		100.0			

Concentration ratio = 0.381

Total personal income per month	Rs. 168.7 crores
Total personal income per year	Rs. 2,024 crores
Total number of households in thousands	8,910
Average income per household per month	Rs. 188.67
Average income per household per year	Rs. 2,264
Average number of persons per household	5.6 persons
Average income per capita per month	Rs. 33.69
Average income per capita per year	Rs. 404

a0.2 of which has been added on the basis of income-tax data.

b2.9 of which has been added on the basis of income-tax data.

Studies on National Income and its Distribution

TABLE A-7

ALL PAKISTAN RURAL AREAS

PERSONAL-INCOME DISTRIBUTION, 1963/64

Monthly income per household in rupees	Number of households by income size		Share of income		Shares of ordinal group	
	Percentage	Cumulated percentage	Percentage	Cumulated percentage	Households	Income
Below 50	7.2	7.2	1.6	1.6	Bottom 5% get	1.1%
50 upto 100	28.4	35.6	13.7	15.3	Bottom 10% get	2.5%
100—150	25.0	60.6	19.6	34.9	Bottom 20% get	6.5%
150—200	16.5	77.1	18.3	53.2	Bottom 30% get	12.0%
200—250	9.1	86.2	13.0	66.2	Bottom 40% get	18.5%
250—300	5.6	91.8	9.6	75.8	Bottom 50% get	26.0%
300—400	4.4	96.2	10.1	85.9	Bottom 60% get	34.0%
400—500	1.7	97.9	4.6	90.5	Bottom 70% get	44.5%
500—700	1.4	99.3	5.5	96.0	Bottom 80% get	57.5%
700—900	0.4	99.7	1.9	97.9	Bottom 90% get	72.5%
900 and above	0.3	100.0	2.1	100.0	Bottom 95% get	82.0%
					Bottom 100% get	100.0%
Total :	100.0		100.0			

Concentration ratio = 0.356

Total personal income per month	Rs. 265.5 crores
Total personal income per year	Rs. 3,186 crores
Total number of households in thousands	17,405
Average income per household per month	Rs. 152.58
Average income per household per year	Rs. 1,831
Average number of persons per household	5.5 persons
Average income per capita per month	Rs. 27.74
Average income per capita per year	Rs. 333

TABLE A-8

ALL PAKISTAN URBAN AREAS

PERSONAL-INCOME DISTRIBUTION, 1963/64

Monthly income per household in rupees	Number of households by income size		Share of income		Shares of ordinal groups	
	Percent-age	Cumulat-ed per-centage	Percent-age	Cumulat-ed per-centage	Households	Income
Below 50	2.5	2.5	0.4	0.4	Bottom 5% get	0.9%
50 upto 100	16.1	18.6	5.0	5.4	Bottom 10% get	2.2%
100—150	23.1	41.7	11.2	16.6	Bottom 20% get	6.0%
150—200	17.5	59.2	10.8	27.4	Bottom 30% get	10.5%
200—250	11.4	70.6	10.2	37.6	Bottom 40% get	15.5%
250—300	8.3	78.9	8.6	46.2	Bottom 50% get	21.0%
300—400	7.7	86.6	11.5	57.7	Bottom 60% get	28.0%
400—500	4.7	91.3	7.9	65.6	Bottom 70% get	37.0%
500—700	4.0	95.3	8.8	74.4	Bottom 80% get	48.0%
700—900	1.9	97.2	5.7	80.1	Bottom 90% get	63.0%
900 and above	2.8[a]	100.0	19.9[b]	100.0	Bottom 95% get	74.0%
					Bottom 100% get	100.0%
Total:	100.0		100.0			

Concentration ratio = 0.445

Total personal income per month	Rs. 60.4 crores
Total personal income per year	Rs. 726 crores
Total number of households in thousands	52,415
Average income per household per month	Rs. 250
Average income per household per year	Rs. 3,000
Average number of persons per household	5.85 persons
Average income per capita per year	Rs. 513

[a]0.8 of which has been added on the basis of income-tax data.
[b]9.4 of which has been added on the basis of income-tax data.

TABLE A-9

ALL PAKISTAN RURAL AND URBAN AREAS COMBINED

PERSONAL-INCOME DISTRIBUTION, 1963/64

Monthly income per household in rupees	Number of households by income size		Share of income		Shares of ordinal groups	
	Percent-age	Cumulat-ed per-centage	Percentage	Cumulated percentage	Households	Income
Below 50	6.9	6.9	1.4	1.4	Bottom 5% get	1.0%
50 upto 100	27.5	34-4	12.6	14.0	Bottom 10% get	2.5%
100—150	24.6	59-0	18.2	32.2	Bottom 20% get	<5-5%
150—200	16.5	75-5	17.1	49-3	Bottom 30% get	"·5 %
200—250	9-2	84.7	12.4	61.7	Bottom 40% get	17-5%
250—300	5.6	90.3	9.1	70.8	Bottom 50% get	24.5%
300—400	4·9	95-3	10.0	80.8	Bottom 60% get	33.0%
400—500	1.9	97.2	5-3	86.1	Bottom 70% get	42.5%
500—700	1-7	98.9	5-9	92.0	Bottom 80% get	55-0%
700—900	0.5	99-4	2·5	94-5	Bottom 90% get	70.0%
900 and above	0.6a	100.0	5.5*	100.0	Bottom 95% get	80.0%
					Bottom 100% get	100.0%
Totals	100.0		100.0			

Concentration ratio=0.3813

Total personal income per month	Rs. 326 crores
Total personal income per year	Rs. 3,912 crores
Total number of households in thousands	20,660
Average income per household per month	Rs. 165
Average income per household yer year	Rs.1980
Average number of persons per household	5.5 persons.
Average income per capita per month	Rs. 42,85 .
Average income per capita per year	Rs. 357

<>0.9 of which has been added on the basis of income-tax data.

6100.0 of which has been added on the basis of income-tax data.

TABLE A-io

EAST PAKISTAN RURAL AREAS, 1963/64

DISTRIBUTION OP PERSONAL INCOME BY SOURCE

Monthly income per household in rupees	Wages and salaries	Self-employment in		Rent, interest, dividends	other sources	Total
		agri-culture	nonagri-culture			
	(...					)
Below 50	42.9	14.8	11.6	7.4	23.3	100
50—100	42.7	25-9	8.6	7.4	15.4	100
100—150	23.x	39-8	11.5	6.1	19-5	гоо
150—200	12.9	47.7	7.9	5-9	25.6	100
300—250	7.3	49.6	9-2	54	28.5	100
250—300	4.9	52-3	9-3	5-7	27.9	100
300—400	6.8	53-2	6.6	5-5	27.9	100
400—500	5-6	51.6	10.5	4.1	28.2	100
500—700	6.4	55-0	5.6	5-2	27.8	100
700—900	13.2	63.3	3-3	0.0	20.2	100
Above 900	6.6	534	4.5	2.2	333	100
All groups	18.2	43-3	9-0	5-9	23.6	100

TABLE A-11

EAST PAKISTAN URBAN AREAS, 1963/64

DISTRIBUTION OF PERSONAL INCOME BY SOURCE

Monthly income per household in rupees	Wages and salaries	Self-employment in		Rent, interest, dividends	other sources	Total
		agri-culture	nonagri-culture			
(.......................*per cent*.......................)						
Below 50	55.3	3.3	11.7	10.3	19.4	100
50—100	61.9	5.9	16.9	5.5	9.8	100
100—150	57.5	6.5	19.9	5.5	10.6	100
150—200	56.3	5.2	22.3	6.0	10.2	100
200—250	40.7	6.9	33.9	5.1	13.4	100
250—300	44.1	6.8	30.7	6.2	12.2	100
300—400	49.0	7.2	28.3	6.3	9.2	100
400—500	37.2	5.1	35.5	5.7	16.5	100
500—700	34.1	7.3	34.9	8.7	15.0	100
700—900	33.6	4.9	44.1	10.6	6.8	100
Above 900	25.1	3.2	40.4	14.2	17.1	100
All groups	44.2	5.8	30.1	7.5	12.4	100

TABLE A-i2

WEST PAKISTAN RURAL AREAS, 1963/64

DISTRIBUTION OF PERSONAL INCOME BY SOURCE

Monthly income per household in rupees	Wages and salaries	. Self-employment in		Rent, interest, dividends	other sources	Total
		agri-culture	nonagri-culture			
	(		npr cent			)
Below 50	36.7	18.1	13-6	7.7	23.9	100
50—100	35-3	25.4	13-0	S-T	21.2	100
100—150	24.5	38.6	10.5	3-5	22.9	100
1050—200	17.7	48.8	7-8	4-5	21.2	100
200—250	11.0	54-5	5.2	4.2	25.x	100
250—300	11.4	56.9	3-9	3-2	24.6	100
300—400	8.j	57-8	6.0	3.1	24.8	xoo
400—500	4-3	58.7	6.4	4.9	25.7	100
500—700	8.6	56.1	4-8	5-2	25.3	100
700—900	10.0	43-7	5.1	13.0	28.2	100
Above 900	4.2	53-1	0.0	22.6	20.1	xoo
All groups	15.1	49.2	6.9	4-9	23.9	100

TABLE A-13

WEST PAKISTAN URBAN AREAS, 1963/64

DISTRIBUTION OF PERSONAL INCOME BY SOURCE

Monthly income per household in rupees	Wages and salaries	Self-employment in		Rent, interest, dividends	other sources	Total
		agri-culture	non-agri-culture			
(. . . . *per cent* . . . .)						
Below 50	44.2	0.0	21.7	19.3	14.8	100
50—100	69.7	0.4	16.5	5.8	7.6	100
100—150	62.1	1.3	24.6	4.4	7.6	100
150—200	62.0	1.3	22.2	6.5	8.0	100
200—250	57.4	2.4	28.0	5.2	8.0	100
250—300	55.3	4.0	25.4	5.3	10.0	100
300—400	55.9	5.5	23.3	6.3	9.0	100
400—500	52.2	5.5	25.2	6.2	10.9	100
500—700	41.1	9.2	25.6	10.9	13.2	100
700—900	46.3	5.0	30.0	3.3	15.4	100
Above 900	50.2	7.9	26.7	2.3	12.9	100
All groups	55.6	4.1	24.9	5.8	9.6	100

TABLE A-14

EAST PAKISTAN RURAL AND URBAN AREAS COMBINED, 1963/64
DISTRIBUTION OF PERSONAL INCOME BY SOURCE

Monthly income per household in rupees	Wages and salaries	Self-employment in agriculture	Self-employment in nonagriculture	Rent, interest, dividends	other sources	Total
		(..............................per cent......................)				
Below 50	43.2	14.5	11.6	7.5	23.2	100
50—100	43.4	25.2	8.9	7.3	15.2	100
100—150	24.8	38.1	11.9	6.1	19.1	100
150—200	18.2	42.6	9.6	5.9	23.7	100
200—250	9.1	47.3	10.5	5.4	27.7	100
250—300	7.9	48.9	10.8	5.7	26.7	100
300—400	10.6	49.1	8.5	5.6	26.2	100
400—500	10.0	45.2	13.9	4.3	26.6	100
500—700	12.0	45.4	11.5	5.9	25.2	100
700—900	19.1	46.3	15.2	3.1	16.3	100
Above 900	16.6	26.4	23.8	8.6	24.6	100
All groups	20.4	40.2	10.7	6.0	22.7	100

TABLE A-15

WEST PAKISTAN RURAL AND URBAN AREAS COMBINED, 1963/64
DISTRIBUTION OF PERSONAL INCOME BY SOURCE

Monthly income per household in rupees	Wages and salaries	Self-employment in agriculture	Self-employment in nonagriculture	Rent, interest, dividends	other sources	Total
(. . . . *per cent* . . . .)
Below 50	37.5	16.2	14.4	8.9	23.0	100
50—100	40.2	21.8	13.5	5.2	19.3	100
100—150	31.70	31.45	13.20	3.67	19.97	100
150—200	26.6	39.3	10.7	4.9	18.5	100
200—250	22.2	41.9	10.7	4.5	20.7	100
250—300	22.2	43.9	9.2	3.7	21.0	100
300—400	21.6	43.1	10.9	4.0	20.4	100
400—500	19.6	41.7	12.4	5.3	21.0	100
500—700	18.9	41.3	11.3	7.0	21.5	100
700—900	28.2	24.3	17.6	8.1	21.8	100
Above 900	38.6	19.4	19.9	7.4	14.7	100
All groups	26.5	36.5	12.0	5.1	19.9	100

TABLE A-16

ALL PAKISTAN RURAL AND URBAN AREAS COMBINED, 1963/64

DISTRIBUTION OF PERSONAL INCOME BY SOURCE

Monthly income per household in rupees	Wages and salaries	Self-employment in		Rent, interest, dividends	other sources	Total
		agri-culture	nonagri-culture			
(. . . .*per cent*. . . . .)
Below 50	41.6	15.0	12.4	7.9	23.1	100
50—100	42.3	24.0	10.5	6.6	16.6	100
100—150	28.0	35.1	12.5	4.99	19.5	100
150—200	22.0	41.1	10.1	5.5	21.3	100
200—250	16.1	44.5	16.6	4.9	23.9	100
250—300	16.0	46.0	9.9	4.6	23.5	100
300—400	17.8	45.2	10.0	4.6	22.4	100
400—500	15.1	43.3	13.2	4.8	23.6	100
500—700	16.5	42.7	11.4	6.6	22.8	100
700—900	24.8	32.5	16.7	6.3	19.7	100
Above 900	31.5	21.6	21.2	7.8	17.9..	100
All groups	23.5	38.3	11.4	5.6	21.2	100

TABLE A-17

WAGE COMPONENTS OF INCOME OF OTHER COUNTRIES

Country	Year	Wages as % of GDP	Wages as % of national income	Wages as % of personal income
Pakistan				23.5(urban 53.1)
Australia	1962	58.0 (for 1961)	63.9	65.1
Austria	1961	54.0	61.0	58.0
Barbados	1959	57.4	58.8	62.5
Belgium	1962	55.8	58.52	52.2
Brazil	1960	—	47.1	—
Canada	1962	58.3	68.7	66.1
Ceylon	1962	46.1	48.9	—
China (Taiwan)	1962	45.9	50.0	51.1
Columbia	1961	38.0	42.9	46.5
Costa Rica	1962	59.5	64.0	64.1
Cyprus	1960	30.7	35.4	—
Denmark	1961	48.8	60.0	55.7
Equador	1962	45.4	50.0	55.5
Finland	1962	59.3	65.2	—
France	1962	—	60.6	53.2
West Germany			63.7	58.4
Greece	1962	40.0	40.9 (excludes wages paid to agricultural workers)	—
Honduras	1962	46.8	50.3	52.0
Ireland	1962	54.6	56.3	53.7
Israel	1962	60.0	61.5	—
Jamaica	1961	50.2	56.5	60.2
Japan	1962	52.7	53.0	57.8
Korea (Republic)	1962	38.3	40.0	39.5
Malta	1962	56.1	52.2	52.9
Mauritius	1962	56.7	57.0	64.2
Netherlands	1962	55.5	61.4	59.1
New Zealand	1962	—	60.0	60.2
Norway	1962	57.3	68.1	—
Panama	1961	63.4	69.1	74.8
Philippines	1962	—	41.9	43.2
Puerto Rico	1962	61.1	58.5	—
Rhodesia and Nyasaland	1962	48.3	52.8	60.9
Spain	1960	45.7	49.5	55.7
Sweden	1962	—	70.5	71.5
Switzerland	1962	—	61.5	62.1
Trinidad and Tobago	1962	—	50.2	55.9
Uganda	1962	24.9	—	—
U.K.	1962	69.5	75.4	74.0
U.S.A.	1962	—	72.1	70.7

Source: [16].

What has been Happening to
Real Wages In Pakistan?

Azizur Rahman Khan

What has been Happening to
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INTRODUCTION

It seems unnecessary to prepare an elaborate case emphasizing the need for some knowledge about the movement of real wages. Such knowledge would help confirm our ideas about the supply of labour and its abundance or scarcity, shed light on the mechanism of transfer of labour from the traditional sector to the modern sector by highlighting the incentive differential between wages in these two sectors and its change over time, and provide insight into the question of the distribution of incremental income.

In view of the obvious importance of the subject, it seems unfortunate that practically no enthusiasm has been shown by researchers in estimating the course of this variable in Pakistan. Certainly, part of the explanation lies in the inadequacy of statistical information. Over the vast agricultural sector, wage labour is not the dominant mode of production. Whatever wage-labour relations exist there and in the services sectors are not systematically reported by the data-collecting machinery in the country. Inevitably, one is, therefore, limited to the examination of the wage movement in the manufacturing industries only.

In this note we do not aim at a comprehensive analysis of the movement in real wages. Our aim is the more modest one of a) deriving indices of real wages in manufacturing industries in each of the two regions of Pakistan after a reasonably careful examination of the different sources of data, and *b)* obtaining certain related measurements, such as the regional

difference in wage rates, the relative position of the wage-earners in the scale of income distribution and labour's factor share in the value of output.

II. WHAT DO WE WANT REAL WAGES TO MEASURE?

One can distinguish several interesting measures of real wages in the industrial sector or in any single industry. The first of them is the usual index of the average standard of living of the workers and is obtained by deflating the index of money wage rates by the index of workers' cost of living:

$$U_{1t} = \frac{w_t}{w_0} \div \frac{P_t}{P_0}$$

$$= \bar{w}_t / \bar{P}_t \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(1)$$

where

U_1 = index of workers' standard of living,

w = money wage rate,

P = cost of living, *i.e.*, cost of the consumption bundle of an average worker,

$\bar{w}$ = *index* of money wage rate, and

$\bar{P}$ = *index* of cost of living.

Subscripts refer to time periods: t to any current period and o to base period.

Variations in this index indicate the direction and extent of changes in the standard of living of an important social class, the workers. The most important hypothesis about the movement of this index over the long period in a surplus labour economy is that it remains unchanged at some subsistence level which is determined by the average standard of living of the workers in the subsistence (*i.e.*, traditional agricultural) sector plus some mark-up [4].

One can devise a second index of real wages to measure what may be called "the real cost of labour" from the employers' point of view. This is obtained by deflating the index of money wage rates by the index of the

price of the product turned out by the enterprise or the industry employing the workers:

$$U_{2t} = \frac{W_t}{W_0} \div \frac{P_t^m}{P_0^m}$$

$$= \bar{w}_t / \bar{P}_t^m \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(2)$$

where

U_2 = index of "the real cost of labour" from the employers' point of view,

P^m = price of the product turned out by the workers, and

$\bar{P}^m$ = price index of the product turned out by the workers.

Other things being equal, variations in this index would indicate changes in the capitalists' share of output and, hence, capacity to reinvest.

That the two indices may easily be different can be demonstrated with the help of the traditional two-sector model of the dual economy. Let us have a traditional sector which produces food and a modern sector which produces manufactured goods. Cost of living for industrial workers would be determined by the prices of the products of both the sectors:

$$\bar{P}_t = a\bar{P}_t^f + (1 - a)\bar{P}_t^m$$

where $\bar{P}^f$ = price index for food and a and $(1 - a)$ are, respectively, the weights of food and manufactured goods in the total consumption of the workers. We, therefore, have:

$$U_{2t} = U_{1t}(\bar{P}_t / \bar{P}_t^m)$$

$$= U_{1t} \left[\frac{a\bar{P}_t^f + (1-a)\,\bar{P}_t^m}{\bar{P}_t^m} \right]$$

$$= U_{1t} + a \left(\frac{\bar{P}_t^f}{\bar{P}_t^m} - 1 \right) U_{1t} \dots\dots\dots\dots\dots\dots\dots\dots\dots(3)$$

What it shows is that if food prices rise faster than manufactured prices (*i.e.*, if $(\bar{P}_t^f / \bar{P}^m) > 1$); the real cost of labour from the capitalists' point of view would rise even if the workers' standard of living remains unchanged[1].

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[1] If $a = 0.6$ (which seems to be the right order of magnitude for a country like Pakistan), a 10-per-cent relative rise in the food-price index would mean that U_2 is 6 per cent higher than U_1.

This would mean, other things remaining unchanged, a fall in the share of profits in manufacturing. This is the famous exception to the theory of growth with unlimited supplies of labour to which Arthur Lewis refers: even if labour supply is infinitely elastic at some subsistence real wage, share of profits in total product will decline and act as a brake on the growth of the economy if "the increase in the size of the capitalist sector relatively to the subsistence sector...turn the terms of trade against the capitalist sector... and so force the capitalists to pay workers a higher percentage of their product, in order to keep their real income constant" [4].

To mention the exceptions to the exception, labour's factor share would still not rise if the increase in "the real cost of labour" is offset by *a*) a rise in the gross value of output per worker, and/or *b*) a rise in the share of value added in the gross value of output. (In this note we subsume the effects *a*) and *b*) under the name of "a rise in labour productivity"[2].)

The index of labour's factor share (which we call U_3) in period t is given by:

$$U_{3t} = \frac{w_t N_t}{(1-v_t)\, P_t^m Q_t} \div \frac{w_o N_o}{(1-v_o)\, P_o^m Q_o}$$

where

N = total employment of labour,

v = ratio of total raw materials and other current inputs to the gross value of output,

Q = quantity of output.

We have:

$$U_{3t} = \left(\frac{w_t}{w_o} \div \frac{P_t^m}{P_o^m} \right) \div \left(\frac{(1-v_t)\, Q_t}{N_t} \div \frac{(1-v_o)\, Q_o}{N_o} \right)$$

$$= U_{2t}/Z_t \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (4)$$

where

Z_t = index of labour productivity according to our definition (*i.e.*, index of real value added per worker) in period t.

2Note that this is not entirely legitimate. Change in the value added coefficient may not have anything to do with labour efficiency, *e.g.*, if this is caused simply by a change in the relative price of an important input.

The labour's factor share would remain unchanged (even decline) if labour productivity exactly (more than) offsets the rise in the real cost of labour. Thus, we have a third measure of real wage, that of labour's factor share or what may be called the real cost of labour in efficiency units.

A decline in workers' standard of living (U_1) would be undesirable from the standpoint of the desirable pattern of incremental income distribution. An increase in labour's factor share or what we call the real cost of labour in efficiency units (U_3) may be undesirable from the standpoint of maximizing growth[3]. Depending on what is happening to the relative prices and labour productivity, it is, however, possible for both the standard of living of workers to go up and the labour's factor share to go down.

In this note, the basic wage index we derive refers to the index of workers' standard of living. In most of the following sections, we concern ourselves with the problem of estimating this index and analysing the movement of this index. Only towards the end do we consider the other two measures of real wage. The term real wage, in the rest of this note, means workers' standard of living while the other two measures are, respectively, called the real cost of labour and the real cost of labour in efficiency units (or labour's factor share).

III. DATA

Real wage rate is defined to be the rate of wage at some constant purchasing power. In other words, it is money wage rate deflated by the index of cost of living for the wage earners. Thus, the estimation of the real wage index requires the estimation of the rate of money wages and the index of workers' cost of living. We, therefore, turn our attention to the available data on these two indicators.

III.1 Sources of Wage Data

There are at least two possible sources of data on wage rates:

a) Under the Payment of Wages Act, the Ministry of Health, Labour and Social Welfare (HLS) collects information on employment and earnings of workers in manufacturing industries [9]. This series includes the non-production workers and clerks earning upto 2,400 rupees per year (*see* [7, p. 45]) which is on the average about 2.5 times the earning of a production

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[3]We are assuming no particular economic system. The argument would hold if the economy were completely socialized. What we now call capitalists' share would then be renamed the share of the state or society. Note, we are assuming that the supply of savings is the main constraint to growth and that workers save at a lower rate than do the capitalists or the state.

worker in recent years. These data refer primarily to the 2(j) factories (*i.e.*, those employing 20 or more persons and using power) although, for some years at least, it seems that some 5(1) factories (employing 10 or more workers) and railwaymen have been included [10]. The HLS publishes two separate series: one for the perennial factories (which we call the HLS perennial series) and the other for all factories, both perennial and seasonal (which we call the HLS overall series).

b) The Census of Manufacturing Industries (CMI) provides information about wages and total number of production workers for each of the census years. By now, such information is available for about a decade (from 1954 to 1962/63 in East Pakistan and to 1963/64 in West Pakistan) with a few intermediate years missing. Before 1962/63, the CMIs were confined to 2(j) factories while since 1962/63, 5(1) factories have also been covered.

III.2 A Comparison of the Two Sources

After a careful analysis of the two sources, it seems to us that the CMI series is superior to the two HLS series. First, the CMI series refers to the production workers whereas the HLS data include clerical and supervisory workers as well. Thus, the CMI data refer to a more homogenous group of labour force — the one in which our interest primarily lies.

Secondly, the CMI provides enough background information to enableus to check the consistency of the data reported. For each region, a four-digit industrial classification is provided so that it is possible to get some rough idea about the effect of the change in the composition of industries on wage rates. It is also possible to estimate wage rates separately for the major industries.

The HLS data for the two regions, on the other hand, give money wages at the aggregate level only. Although the HLS perennial series for Pakistan as a whole provides some sector classification, regional data are for aggregate manufacturing sector only. Moreover, only the money wage rate is shown without any information about wage bill and employment. HLS overall series provides no sector classification either, but it shows total employment and wage bill. The aggregate nature of the HLS data makes it impossible to check the doubtful entries. And there are rather too many doubtful entries. To give some examples: *a*) in 1959, employment in Karachi goes down by 34 per cent from the preceding year while wage bill goes up by 8 per cent[4]; *b*) in 1959, employment in West Pakistan (excluding Karachi) goes down by 13 per cent while wage bill goes up by 48 per cent[5]; *c*) in 1962, wage bill in Karachi goes up by 57 per cent while employment

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4 *See* [7, p. 74, Table 28].
5 *See* footnote 4 above.

goes down by over 2 per cent[6]. In all these cases, money wage rates change by 60 per cent or more. It does not seem likely that wage rates actually changed so erratically and, therefore, quixotic changes in coverage are probably the cause. Coverage in East Pakistan dropped from 100 per cent of factories in 1960 to only 51 per cent in 1961 (*see* [9, January-March 1964]). Coverage in terms of employment in West Pakistan, excluding Karachi, in 1955 was only about 11 per cent of that in 1954 (*see* [7, p. 74]). Such erratic changes in coverage can do anything to the overall wage rate simply by concentrating the undercoverage in a particular year in certain low- or high-wage industries. From the available HLS sources, it is impossible to determine how the changes in coverage were distributed in each year.

In comparison, the CMI has generally steadily improved its coverage and for any two consecutive CMIs the change in coverage at the aggregate level is far less than can be called erratic. For individual industries, however, there have been certain erratic changes, most of them in the year 1955 over the preceding year. One advantage of the CMI is that it provides enough information to make judgement on the plausibility of such sudden changes. In Appendix Table A-4, we show money wage rates for the major industries of each of the two regions of Pakistan. To emphasize the limitation of the data, we make the following observations:

a) In both regions, the major textile industries show no erratic change in wage rates, wage bill or employment. In view of the fact that textiles employ more than half the industrial labour force in each region, this is reassuring. Movement of real wages in textiles can serve as the major basis in testing our hypotheses and deriving our conclusions.

b) Certain nontextile industries in East Pakistan (notably printing and publishing, transport equipment, "miscellaneous industries", chemicals and metal products) in 1955 showed rather sharp decline in wages from the preceding year. Some of the declines can at least partly be explained by the change in intraindustry product composition, but quite a few of these changes cannot be explained satisfactorily. This phenomenon exists, although to a much smaller extent, in West Pakistan as well. As a result, real wages in nontextile industries declined in 1955 over 1954. This decline is particularly sharp in East Pakistan — nearly 25 per cent. One inevitably becomes skeptical about such big and sudden change and the skepticism is justified by our inability to explain some of the sharp wage declines in that year.

c) Wages in food manufacturing in East Pakistan have shown severe fluctuations in other years as well. These fluctuations seem to be correlated

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[6] *See* footnote 4 on p. 112.

with fluctuations in the coverage of rice milling which is a low-wage industry. In both the regions, we have a few more unexplained sudden changes, all in the nontextile sectors. Below, we estimate, for each region, two indices of real wages, respectively for *a*) all industries and *b*) textiles on the basis of the CMI data. In view of what has been said above, our faith in the index for aggregate industries is somewhat less than for textiles.

III.3 Adjustments Made in the CMI Data

In view of the above, it appears to us that the CMI data, in spite of obvious limitations, are superior to the other source so that it seems reasonable to use the CMI as our basic source of data and base our conclusions on them with appropriate qualifications. We, of course, compare the findings based on the CMI series with those derived from the HLS data.

In this study, the term wages means wages, dearness allowance and cash benefit[7]. While the CMIs for 1957, 1959/60, 1962/63 and 1963/64 show these separately, the 1954 and 1955 CMIs show wages and benefits (presumably including noncash benefits) together while 1958 CMI shows only wages and dearness allowance. To render them comparable, we make the following adjustments. We estimate the proportion of noncash benefits in total wages and benefits on the basis of the 1957 and 1962/63 CMIs (which provide such information separately) and make downward adjustment in wages and benefits shown in the 1954 and 1955 CMIs. Similarly, on the basis of the 1959/60 CMI, we ascertain the proportion of cash benefits in total wages and use it to make upward adjustment in 1958 wages shown in the CMI. It is reassuring that all such adjustments are very small[8].

For 1962/63 for East Pakistan, we use the information for 2 (j) factories only. For West Pakistan, our information for 1962/63 and 1963/64 is based on unpublished CMIs and they refer to both 2(j) and 5(1) factories. We use these figures for want of separate information about 2(j) factories and make appropriate qualifications in the interpretation of the results.

III.4 Cost of Living Index

CSO's General Consumer Price Index for Industrial Workers for the relevant period was originally based on a commodity list and weights derived from a 1943/44 survey of working-class family expenditures. The new CSO

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[7]This definition is partly dictated by the convenience of obtaining data, but seems good enough for our purpose.

[8]Details of adjustments made are described in footnotes to Appendix Tables A-1 and A-2.

Consumer Price Index for Industrial Workers is based on weights derived from a more recent (1955/56) family expenditure survey, but cannot be applied to the period before 1961 for want of past price series for the new commodities introduced. However, the CSO claims that "the old series have been spliced into the new series" [6]. This means that the new *relative* weights for the commodities in the old index have been used to recalculate the old index, thus reducing the difference between the two indices to the fact that within each broad group the new index incorporates many new commodities each quantitatively unimportant.

An important limitation of the index is that it uses fixed weights while we should like to allow for changes in consumption pattern caused both by income and price changes. The fixed-weight wage deflator is given by:

$$P = \sum_i (P_t^i/P_o^i) (P_o^i Q_o^i/\sum_i P_o^i Q_o^i)$$

where P^i=price of i, Q^i=quantity purchased of i and subscripts t and o refer to time periods. The price relative for the i-*th* commodity is weighted by the base-year proportion of total expenditure on i. If the price increase is concentrated in the commodities with inelastic demand then such a deflator would understate the increase in price because the actual expenditure on the commodities having high price relatives would be higher than the base-year proportion. In Pakistan, food prices have risen considerably more than the prices of other commodities in the index over the relevant period [6] and demand for foodgrains is highly inelastic. It seems very likely that an average wage-earner spends a higher percentage of income on food today than when the weights were derived. And this precisely is the condition which is sufficient to show that the present index understates the rise in cost of living (unless, of course, counterbalancing forces are in operation).

The CSO points out [6] that the prices are collected from the retailers and not from the consumers so that they may have been underquoted to some extent. More importantly, it may have led to the underquotation of the *increase* in prices. This will be the case, for example, if a shortage appears in the supply of a product for which a price norm is suggested either by the producer or by the government.

Finally, for house rent the same price relative is reported each year for want of information. This has almost certainly caused some downward bias in the index.

In the above, we have tried to point out a few factors which may have caused a downward bias in the CSO cost of living index. It is possible,

though not so obvious, that there are factors which counterbalance the above forces. In the absence of any other estimate of the index of cost of living, we are forced to use the CSO index as our wage-deflator, but the results have to be interpreted with the weakness of the cost of living index in mind.

By far the most important cause of our scepticism about the CSO index is due to the fact that the food-price index used by it shows a much lower increase, particularly in East Pakistan than do the alternative sources of price information[9]. To get an idea of the extent of understatement due to this factor, we make an alternative estimate of the cost of living index for East Pakistan in Appendix B and use it to obtain corresponding indices of real wages.

IV. MOVEMENT OF REAL WAGES

Table I shows real wages and real wage indices obtained by deflating the adjusted CMI money wage rate by the CSO General Consumer Price Index for Industrial Workers. For each region, we have shown real wages *a*) for all industries, and *b*) for textiles separately. The reason we show the index separately for textiles has already been mentioned: it employs more than half the labour force in manufacturing in each region, the composition of labour force in this sector has probably remained reasonably stable (certainly more so than for aggregate manufacturing) with respect to product, skill, *etc.*, and finally, we have argued above that the data for textiles are more reliable than for the rest as a whole.

In East Pakistan, real wages for aggregate industries have remained lower in all years as compared to the base year (1954). It declines sharply in 1955 (*see* our comments in subsection III.2) and then remains fairly stable until 1962/63 when the recovery is more pronounced. For textiles in East Pakistan, there is a small rise in 1955 over the base year and then a fairly sharp decline in 1957. Recovery starts from 1958 and continues upto 1962/63 when the base-year value is slightly exceeded. It should, however, be pointed out that an upward bias in East Pakistan textile wages is created throughout the period due to the continuous rise in the share of jute textiles, wages in jute textiles being, on the average, about 20 per cent higher than wages in cotton textiles (*see* Appendix Table A-4). If the real-wage rates for jute and cotton textiles are estimated separately, we still have very considerably lower real wage in each of them by 1962/63 as compared to the base year (*see* Appendix Table A-4).

In West Pakistan, the result is more striking. Real-wage rate for aggregate industries drops in 1955 over the base-year level and remains

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[9]*See* Section VIII and Appendix B below.

TABLE I

REAL WAGES IN RUPEES PER YEAR PER WORKER (WAGES DEFLATED BY 1954-BASED COST-OF-LIVING INDEX) BASED ON CMI DATA

Year	EAST PAKISTAN				WEST PAKISTAN			
	All industries		Textiles		All industries		Textiles	
	Real wage	Index	Real wage	Index	Real wage	Index	Real wage	Index
1954	794.5	100.0	759.4	100.0	966.2	100.0	963.7	100.0
1955	702.3	88.4	783.8	103.2	911.5	94.3	960.5	99.7
1957	726.5	91.4	644.4	84.9	909.4	94.1	892.7	92.6
1958	743.3	93.6	672.4	88.5	933.6	96.6	887.3	91.1
1959/60	737.5	92.8	718.3	94.6	935.7	96.9	894.4	92.8
1962/63	766.2 (727.8)	94.4 (91.6)	773.0 (727.7)	101.8 (95.8)	854.4	88.4	859.4	89.2
1963/64	..	..	..	..	870.6	90.1	..	..

Notes : 1. *See* Appendix Tables A-1, A-2 and A-3 and notes following them for the background information and the method of estimation.

2. East's 1962/63 figures in parentheses refer to combined 2(j) and 5(i) factories.

3. (..) means not available.

4. It may appear that the change of base to 1955 would show steady (though slow) rise in aggregate manufacturing real wages in East Pakistan from that year onwards. But note our argument in Subsection III.2 that the 1955 real wage in East Pakistan for aggregate industries is understated.

fairly stable until 1962/63 when it drops sharply again. For textiles, we again have a decline in real wages in stages fairly sharply upto 1957 after which it remains stable for about half a decade. It again declines a few percentage points in 1962/63.

We must add that the West Pakistan real-wage rates for 1962/63 and 1963/64 are estimated for workers employed both in 2(j) and 5(1) factories while all previous years' wage rates are based on 2(j) factories only. On the basis of the information obtained from the 1962/63 CMI for East Pakistan, it seems that wages are lower in 5(1) factories (which are on smaller scales than 2(j) factories). But the share of 5(1) factories is small in both the regions' CMIs, and in East the real-wage indices for 1962/63 go up only by about 5 percentage points, if 5(1) factories are left out. If West Pakistan real-wage indices for 1962/63 and 1963/64 are adjusted upward by 5 percentage points, the above conclusions remain unaffected: at the aggregate industry level, real-wage rates in the last two years would still be lower than in 1959/60 and way below the level in the base year. For textiles, real wages in 1962/63 after this adjustment would only be slightly higher than in 1959/60 but still considerably lower than in the base year.

To summarise: the real-wage rates estimated on the basis of the adjusted CMI data show the following pattern during the decade beginning 1954: in East Pakistan not much of a trend can be found; there was a decline early in the decade, followed by a period of steady real wages until at the end of the period near recovery to the base-year level was attained. In West Pakistan, real wages declined early in the decade and remained steady without showing any sign of recovery right upto the end of the period.

How do the HLS data compare with the above findings? Table II shows the real wages for East Pakistan, Karachi and the rest of West Pakistan estimated on the basis of the HLS *perennial* series. For East Pakistan, the above finding is confirmed somewhat strongly: real wage rate declines from 1955 to 1959 fairly rapidly and then recovers a good deal but even in 1963 it is lower than in the base period. In Karachi, by the end of the period, there is a slight rise over the earlier periods but in the rest of West Pakistan considerable drop takes place.

The HLS *overall* series (Table III), however, leads to different conclusions. According to this series, real wages in all three areas have shown increases in recent years. Presumably, the only difference between the two HLS series is that the perennial series is obtained by subtracting seasonal factories from the overall series. Thus, the increase must be concentrated in the seasonal factories. One explanation would be that the seasonal factories operate at the time of peak demand for labour and, hence, they are

TABLE II

REAL WAGES (i.e., WAGES DEFLATED BY THE 1954-BASED COST-OF-LIVING INDEX) BASED ON THE HLS PERENNIAL SERIES

Year	East Pakistan	West Pakistan*	Karachi
	(...........*rupees per worker per year*........)		
1955	845.2	993.2	1,084.4
1956	750.3	1,136.2	1,048.3
1957	709.9	893.0	1,058.2
1958	722.5	972.5	1,015.5
1959	704.8	979.9	931.7
1960	768.0	970.1	1,140.8
1961	765.6	793.4	1,117.0
1962	832.4	..	..
1963	826.9	————1,051.3————	

* Excluding Karachi.

better placed for wage bargains. But this does not seem plausible in view of the lower wages in seasonal factories[10] than in perennial factories. What seems more likely (barring of course the possibility of straightforward arithmetic errors) is that the extremely erratic changes in coverage have led to serious changes in the proportion of seasonal factories covered. In other words, the overall wage rate is a weighted average of two rates, one considerably higher than the other. If the relative weights change erratically from year to year the overall rate may show erratic changes in spite of the fact that the two constituent rates are fairly stable.

TABLE III

REAL WAGES (i.e., WAGES DEFLATED BY THE 1954-BASED COST-OF-LIVING INDEX) BASED ON THE HLS OVERALL SERIES

Year	East Pakistan	West Pakistan
	(*rupees per worker per year*)	
1954	682.2	842.7
1955	767.1	1,095.2
1956	690.8	1,106.7
1957	675.3	970.1
1958	676.4	1,004.3
1959	543.1	944.6
1960	724.1	1,030.3
1961	719.1	937.2
1962	793.3	1,270.3
1963	787.3	1,032.3

[10]Overall money wage rate is lower than that for perennial factories according to HLS data for Pakistan as a whole [7].

V.   SOME QUALIFICATIONS

Insofar as our concern is with the average welfare of the working class as a whole, we should compare the standard of living of an average worker today with that of an average worker in some base period (while allowing the average worker to change between the periods with respect to skill, age, sex, *etc.)* and not the standard of living of a worker of given skill, age, sex, *etc.,* today as compared to that in some base period. For the purpose of measuring the change in the average wellbeing of the workers, it is just as important to know how workers have been moving between jobs of varying rates of skill and income as to know how specific rates have been changing. To illustrate, if nothing happens to the specific rates while all workers move to better-paid jobs due to increase in their skills, then it is right to say that the workers' standard of living has increased.

If the above statement is correct then the only adjustment we have to make in our estimates is for changes in the number of hours worked per labourer. If, however, we are interested in measuring the wellbeing of a worker of given skill, age, sex, *etc.,* then our estimates have also to be adjusted for changes in skill, age, sex, *etc.,* composition of the labour force.

We may actually go one step further and argue that in a country like Pakistan it is the average earning per worker (irrespective of the number of hours worked per labourer) which is the relevant indicator of workers' welfare. In other words, it is our measure which is the ideal indicator of workers' standard of living. This claim is based on the reasoning that the marginal utility of leisure at the relevant level of employment and income is probably negligible so that the workers would still be better off (worse off) if wage per hour declines (increases) but wage per worker increases (declines) due to an increase (decrease) in the number of hours worked per labourer.

In the following, we comment on the possible effects of the disturbing factors while maintaining that if our argument above is broadly right, our index needs not be adjusted for any of these factors to measure workers' "welfare" or real standard of living.

a) Skill Composition of Labour Force: With all the specific wage rates unchanged, the overall rate would change if the skill composition of the labour force changes. There are broadly two types of such change: first, change in the share of more skill-requiring industries in total employment and second, change in the proportion of skill-requiring jobs within individual industries.

Although our overall index is subject to the influence of the first kind of factors, the textile wages are not. The same is true at least to a large extent about many of the individual industries shown in Appendix Table A-4. A comparison of the money wage rates in that table and the relevant cost of living indices shows that real wage rates in most of the major industries have followed the pattern of the overall real wage index.

It also seems unlikely that the skill composition within an industry like textiles would vary significantly over time. If at all, workers on the average are likely to have become generally more "learned" over time. Thus, this factor is unlikely to have "distorted" the change in real wages in the downward direction.

b) Sex and Age Ratios: This factor could not have played any significant role in view of the fact that women and nonadults have been an extremely small proportion of total manufacturing labour force (less than 2 per cent and 1 per cent, respectively in East Pakistan and less than 1.5 per cent and 1 per cent, respectively in West Pakistan in as recent a year as 1959/60 [5], the only year for which we have the information).

c) Number of Hours Worked: If working hours per labourer have been getting longer (shorter) then our figures would overstate (understate) the increase in hourly real-wage rates. The only information we have is limited to the change in East Pakistan over the period between 1959/60 and 1962/63 (Appendix Table A-4) which shows that in the latter year an average production worker worked about 30 per cent longer hours than in the former year. According to these figures, hourly real-wage rate in East Pakistan declined very sharply (more than 25 per cent) between the years 1959/60 and 1962/63.

Some increase in working hours may have been made possible by the greater rate of capacity utilization in more recent years which facilitated the provision of more overtime work. In view of the well-knownthypothesis that the rate of capacity utilization over the same period went up in West Pakistan also, the same may have happened there. But such sharp reduction in the hourly wage rates, as indicated by the information in Table IV, seems at best unlikely. Our skepticism about the working hours shown in 1962/63 CMI arises out of the fact that the same document shows that during the year less than 300 shifts were worked per factory. Thus, unless the large factories were working many more shifts than the small ones, the two figures are inconsistent.

TABLE IV

AVERAGE NUMBER OF HOURS WORKED PER PRODUCTION WORKER PER WEEK IN EAST PAKISTAN IN 2(j) FACTORIES

Year					All industries	Textiles
1959/60	..	..	..	..	45.3 (100)	46.5 (100)
1962/63	..	..	..	..	58.4 (129)	60.9 (131)

Note: Figures in parentheses are indices with base 1959/60.　　　　　　　　　　　*Source:* [5].

We end this section with a word on a final factor a change in which does affect the real-wage index as an indicator of workers' welfare. In Section VII, we measure per capita income of an average working-class family on the basis of the information on family size and earners per family for a particular year in mid-fifties. We do not know how the number of earners per family (the number of dependents per employed worker) has been changing. If this has been going up (down) fast, workers' average standard of living may also have been going up in spite of the reduction in real wages that we observe. We have no empirical evidence whatsoever on the movement of the number of dependents per worker and *a priori* it is difficult to argue that it has been changing in any particular direction[11].

VI. COMPARISON OF REGIONAL REAL WAGES

It is estimated by the Planning Commission that the regional per capita income in West Pakistan is 31 per cent higher than in East Pakistan for the year 1962/63 (*see* [11, chapter IX]). Such comparisons are made on the basis of regional outputs at constant prices of a particular year (1959/60 is the latest CSO base) without any correction for the regional difference in the purchasing power of income.

How do regional real wages compare? Again, without any adjustment for the regional difference in the purchasing power, real wages at the aggregate level have on the average been about 25 per cent higher in West than in East Pakistan[12]. To overcome the possible distortion due to the

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11Over the period under review, industrial employment expanded a good deal. If one takes into account the workers' extended families (including those left behind in the village) then it is plausible to argue that the number of dependents per worker has declined. This is because some members of extended families have probably found employment and hence need not be supported any more.

12If adjusted for the difference in the purchasing power of wages in the two regions, the disparity would be greater. This claim is based on a study by Mr. Abdul Ghafur of this Institute. He compares the relative prices of wage goods of the two regions by using workers' consumption bundle in the two regions as weights separately. Prices of wage goods on the average are about 10 to 15 per cent higher in East Pakistan for the years for which he undertakes the study.

It should be noted that similar correction would also give a greater disparity in regional incomes per head than is shown by the simple comparison of regional incomes. It has been claimed that such correction factor is much greater than 15 per cent(*see* [2, p. 93]).

difference in regional composition of industries, one could refer to the region-
al disparity in cotton textile workers' wages: it is considerably greater than
the disparity for the aggregate manufacturing sector (about 45 per cent hig-
her in West than in East Pakistan on the average)[13].

TABLE V

WEST'S REAL WAGE AS MULTIPLE OF EAST'S REAL WAGE

(Based on CMI Data)

Year					All industries	Cotton textiles
1954	..	..	..	..	1.22	1.38
1955	..	..	..	..	1.30	1.46
1957	..	..	..	..	1.25	1.46
1958	..	..	..	..	1.26	1.47
1959/60	..	..	..	..	1.27	1.48
1962/63	..	..	..	..	1.17	1.42

Note: Figures for 1962/63 refer to both 2(j) and 5(1) factories while for other years they refer to only 2(j)
factories.

VII. WHERE DO THE INDUSTRIAL WAGE-EARNERS STAND IN THE INCOME DISTRIBUTION SCALE?

In 1962/63 in East Pakistan wage rate at current price was 1,004.4
rupees per worker per year (in all 2(j) and 5(1) factories together). In 1959/60
purchasing power thus turns out to be 936.9 rupees. Number of dependents
per *earner* in the working-class families in East Pakistan average at 4.6[14].
Thus, per capita income of an average wage-earner's family turns out to be
203.7 rupees or about 73 per cent of regional per capita income (*see* [11,
Chapter IX]) at 1959/60 prices.

West Pakistan's average wage rate per year in 1962/63 was 1,035.5
rupees at current prices or 976.9 rupees at 1959/60 purchasing power of the
workers. Average number of dependents per wage-earner being 4.7[15],
per capita income turns out to be 207.9 rupees or 54 per cent of regional
per capita income.

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[13]Cotton textile wages in East are lower than the average industrial wages while wages in West
Pakistan cotton textiles are just about equal to the average industrial wage. If the disparity between the
cotton textile wages of the two regions approximately represents the difference between skill-specific
wages of the two, then production workers in manufacturing industries have a higher level of average skill
in East so that the overall wage disparity is less than the disparity in cotton textile wages. It should also
be noted that the regional disparity in cotton textile wages is greater than the regional disparity in per
capita income as measured by the Planning Commission while the regional disparity in overall manufac-
turing wages is less than the regional disparity in per capita income.

[14]Average for Dacca, Chittagong, Narayanganj and Khulna in East Pakistan and average for
Karachi, Lahore, Peshawar, Hyderabad, Multan and Quetta in West Pakistan, *see* [7].

[15]*See* footnote 14 above.

It is interesting to note that a very large majority of rural population in each region is better off than an *average* industrial worker. Approximately, less than 40 per cent of East's rural population has lower income than average urban wage-earners (compare data shown in [1] with our wages). A comparison of our findings with those of [1] also reveals that urban wages are way below average income in rural areas (*not* average rural "workers" income)[16].

We have already noted that over the period under review real wages have failed to rise and almost certainly they have declined somewhat. During this period, per capita income has increased particularly in the urban areas and quite impressively in West Pakistan. Thus, income distribution over the decade under review must have changed unfavourably for the working class and in particular urban income distribution must have become more unequal. This effect must have been more pronounced in West Pakistan than in East Pakistan.

VIII.   REAL LABOUR COST FROM EMPLOYERS' POINT OF VIEW AND LABOUR'S FACTOR SHARE

The above discussion is exclusively concerned with one of the three indices of real wages to which we referred in Section II, that of workers' standard of living (U_1). In this section we discuss what little we can about the behaviour of the other two indices, those of the real cost of labour from employers' point of view (U_2) and labour's factor share (U_3).

We cannot estimate U_2 for the aggregate industrial sector for want of an index of producers' price for the products of the entire sector. We, however, estimate it for jute and cotton textiles in East and for textiles in West Pakistan, products for which we have some price information of the necessary type.

In a study, Stephen R. Lewis Jr. and S. Mushtaq Hussain find that the relative prices of agricultural goods have risen very considerably faster than the price of manufactured goods over the relevant period in both the regions of Pakistan [3]. Since our estimates show that U_1 has gone down only very slightly in East Pakistan and not very much in West Pakistan over the whole period, can we conclude from this, according to our Equation (3) in Section II, that U_2 has risen rapidly over the period under review for the manufacturing sector as a whole?   Our answer is in the negative because of the following: in the CSO cost-of-living index (which is our wage-deflator

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[16]The comparison between urban wages and rural incomes must be qualified by the statement that it depends a good deal on the relative coverage given to the components of income by [1] for rural areas and by the CMI for urban wage earners.

in obtaining U_1 from money wage rates) food prices have over 60 per cent of total weights [6]. The food price index that is included in our wage-deflator shows much smaller increase than the food price index used by Lewis and Hussain to reach their conclusions (Table VI). If we had substituted the Lewis-Hussain food price index in our wage-deflator, we would undoubtedly get a very great decline in real wages (*i.e.*, in U_1, the index of workers' standard of living) and particularly so in East Pakistan[17]. To what extent the adverse terms of trade for manufacturing, as shown by Lewis and Hussain, would be powerful enough to outweigh the decline in U_1 can only be ascertained after empirical analysis of each case[18].

TABLE VI

COMPARISON OF FOOD PRICE INDICES

Year			East Pakistan		West Pakistan	
			Lewis-Hussain	CSO: Cost of Living Index	Lewis-Hussain	CSO: Cost of Living Index
1954	..	..	100.0	100.0	100.0	100.0
1959/60	..	..	192.8	133.0	131.0	122.8
1962/63	..	..	199.1	141.1	135.5	127.2
1963/64	..	..	—	—	146.3	132.9

Note: Lewis-Hussain index is the one that uses the marketed quantities as weights [3]. Source for the CSO index is [7]. In both cases the 1954 index is the average of the 1953/54 and 1954/55 indices.

The main explanation of the discrepancy between the two sets of food prices lies in the CSO's use of controlled prices for a large part of the major foodgrains. For example, between a half and three-quarters of rice in East Pakistan is assumed to have been bought at ration shops. This procedure makes the food price index lower than it would be if free market prices

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17In Appendix B we make an attempt to re-estimate the *minimum* (*maximum*) increase in cost of living (real wages) in East Pakistan (for which the discrepancy between Lewis-Hussain and CSO is very great) by substituting retail food prices from alternate CSO source for the food prices used in the CSO cost of living index.

18We can estimate U_2 for overall industries according to the following method: Step 1: Substitute Lewis-Hussain food price index for the CSO food-price index into the cost-of-living index. Step 2: Re-estimate U_1 by using this revised cost-of-living index. Step. 3: Obtain U_2 from U_1 by following Equation (3) of Section II and using Lewis-Hussain Pf and Pm. We get the following estimate of U_2 for aggregate industries (base 1954).

	East	West
1959/60	103.6	105.7
1962/63	111.7	98.2

Our reservation about this procedure is due to our doubt about the relevance of Lewis-Hussain pm for this purpose, the causes of which are mentioned in footnote 20.

were used because: *a*) controlled prices have shown smaller increase than free-market prices; and *b*) the CSO has been varying the share of rice/wheat bought at controlled prices from year to year, the correlation between these shares and free-market prices being on the whole positive.

The objections against the CSO's procedure are powerful. The CSO's assumption of the share of purchase at ration shops is not based on any statistical information about actual purchases. They are pure guesses. In most years, statutory rationing did not extend beyond municipal areas while the factories and workers' homes are located outside these areas. The changes in the shares of rice/wheat sold at controlled prices are also based on pure guesses and not on the facts about actual sales[19].

If our argument about the CSO's procedure is correct then real wages (*i.e.*, U_1, workers' standard of living) have actually declined more than our estimates show[20].

Our estimates of the real labour cost from capitalists' point of view (U_2) for cotton and jute textiles in East Pakistan and for cotton textiles in West Pakistan are shown in Table VII. These are estimated directly by dividing money wages by the indices of respective wholesale price of textiles.

TABLE VII

INDEX OF REAL LABOUR COST FROM THE MANUFACTURERS' POINT OF VIEW

Year				East Pakistan		West Pakistan
				Cotton textiles	Jute textiles	Cotton textiles
1954	..	..	..	100.0	100.0	100.0
1955	..	..	..	111.8	92.8	118.0
1957	..	..	..	105.2	79.5	97.2
1958	..	..	..	95.4	92.9	104.2
1959/60	..	..	..	95.7	90.6	98.6
1962/63	..	..	..	98.7	101.8	103.9

Note: These are obtained by dividing money wage rates shown in Appendix Table A-4 by the index of respective product prices shown in Appendix Table A-5.

Not much of a trend can be found for real labour cost in any of the three cases. If anything, for cotton textiles in East Pakistan there seems to

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[19]Note that neither [6] nor [7] give even a hint that controlled prices are used.

[20]Lewis and Hussain have prepared an index of wholesale prices of manufactured goods. We do not use it to obtain U_2 directly from U_1 because: *a*) their index does not refer to the same commodity bundle as our industrial sector produces; *b*) they use 1959/60 fixed weights while we want weights to vary according to outputs; and *c*) their prices are not necessrily for the domestically produced goods.

be a downward trend after an initial rise. For jute textiles, we observe a gradual decline upto 1957 and then, followed by a period of stability, recovery just above the base-year level by the end of the decade. For cotton textiles in West Pakistan, there is quite a bit of fluctuation, but no definite trend. One should note, however, that the index of workers' standard of living for all three industries shows some decline over the period, markedly so for cotton textiles in both the regions. Thus, in general, U_2 has a higher value relative to U_1 in all three cases.

TABLE VIII

LABOUR'S FACTOR SHARE

Year				All industries	Cotton textiles	Jute textiles
A. East Pakistan						
1954	..	..	..	.463	.356	.454
1955	..	..	..	.378	.371	.381
1957	..	..	..	.370	.422	.551
1958	..	..	..	.394	.451	.510
1959/60	..	..	..	.376	.370	.423
1962/63	..	..	..	.260(.288)	.438	.295(.411)
B. West Pakistan						
1954	..	..	..	.303	.305	
1955	..	..	..	.367	.399	
1957	..	..	..	.380	.392	
1958	..	..	..	.329	.384	
1959/60	..	..	..	.341	.384	
1962/63	..	..	..	.338	.361	

Note: Factor share is defined as total employment cost (production and nonproduction workers) divided by gross value added. Since 1962/63 is the first year in which CMI includes indirect tax in value of output and value added, we have subtracted them to make the values added comparable with other years. We are still left with sudden fall in labour's factor share in jute textiles and all industries in East. Low share in jute textiles in that year is due to high share of value added which is caused by the serious underestimate of raw jute input as the comparison with previous CMIs reveals. If we revise 1962/63 raw jute input by using the 1959/60 ratio of raw jute to jute manufactures in physical weight, we get a lower value added coefficient and a higher coefficient of labour's factor share which is shown in parentheses.

Table VIII shows labour's factor share (U_3) in the three industries listed above and also in the aggregate manufacturing sector of the two regions. For West Pakistan we observe quite a sharp rise very early in the period and gradual decline since. For East Pakistan it declines for aggregate industries and goes up a bit for cotton textiles. For jute textiles there is quite a bit of fluctuation, an increase upto late fifties and then a decline.

The fact that labour's factor share shows somewhat higher increase by the end of the period over the base period than real labour cost in cotton textiles in both the regions shows that labour productivity according to our definition declines somewhat in both cases (Equation (4) of Section II). A closer examination reveals that this is due primarily to the declining share

of value added in gross value of product. Similarly, the rather sharp reduction in recent years in labour's factor share in East's jute textiles in the face of rising real labour cost indicates dramatic increase in "labour productivity", again largely caused by the rising share of value added in gross value of product (which again is largely due to the reduction in the price of major input).

XI. CONCLUSIONS

None of the findings about the course of real wages is startling. In a surplus labour economy one expects real wages to stabilise around some subsistence level. Fluctuations would still occur insofar as cost of living changes and it takes time for wages to adjust, and as wage adjustment can rarely be exactly equal to change in cost of living because of forecasting and estimating difficulties.

Again in the situation of general surplus labour, one does not expect the industrial wages to be disproportionately greater than the average "wage" in the traditional (*i.e.*, agricultural) sector. Some differential has probably to be maintained to compensate for the urban-rural differences in cost of living (such costs being broadly defined). But industrial wage cannot remain disproportionately in excess of the average agricultural "wage"; competition in the labour market would lower the gap near the minimum level dictated by the incentive differential requirement. The cost of rudimentary training povided to the unskilled or semi-skilled workers, the pre-wages of the trade unions, and government actions in regulating minimum sence are not formidable enough to crcate a large gap.

The experience of West Pakistan in recent years shows that the industrial employers have been able to draw labour from rural areas at a rapid rate with steady real wage and fairly low incentive differential. Only about a quarter of the rural population had lower income than average income of a wage-earning family. But labourers (presumably from the poorest income groups) nevertheless moved from villages to urban areas. During the period 1951 to 1961 urban labour force grew at nearly 4 per cent per year while rural labour force grew at only 1 per cent per year (population censuses quoted in [7]).

It is also interesting to note that urban-rural wage differential is considerably greater in East than in West[21]. This may have something to do with the tenancy system in the traditional sector of the two regions. In West Pakistan agriculture pure wage-labour relations are more dominant

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[21]Compare 1962/63 current price wages with rural incomes per head in 1963/64 shown in [1].

while in East **Pakistan** there are fewer landless wage-earning labourers. **Thus, the choice before a rural labourer in East is frequently not one between job in** a **rural area and** a **job in an urban area.   It often involves giving up the status of** a **farmer partly owning his land and this has to be adequately compensated for.**

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Appendix A

Supplementary Statistical Tables

TABLE A-1

CMI DATA ON WAGES AND EMPLOYMENT OF PRODUCTION WORKERS IN EAST PAKISTAN

Year				Employment	Wages	Money wage rate
				(numbers)	*(thousand rupees)*	*(rupees)*
				All Industries		
1954	..	..	..	53,161	43,544(1)	819.1(794.5)
1955	..	..	..	78,710	57,673(1)	732.7(710.7)
1957	..	..	..	89,303	76,883(3)	860.9
1958	..	..	..	1,06,900	94,511(2)	884.1(910.6)
1959/60	..	..	..	1,21,166	1,15,000(3)	949.1
1962/63	..	..	..	1,33,589	1,41,247(3)	1,057.3
				Textiles		
1954	..	..	..	27,638	21,639(1)	782.9(759.4)
1955	..	..	..	37,807	30,916(1)	817.7(793.2)
1957	..	..	..	54,499	41,615(3)	763.6
1958	..	..	..	65,354	52,261(2)	799.7(823.7)
1959/60	..	..	..	75,730	70,010(3)	924.5
1962/63	..	..	..	84,242	89,873(3)	1,066.8

Notes: (1) Includes noncash benefits which are about 3 per cent vide CMIs 1957 and 1962/63. Money wage rate is adjusted by 3 per cent downward and shown in parentheses.

(2) Excludes cash benefits which are about 4 per cent vide 1959/60 CMI for both production and nonproduction workers. We adjust upward by 3 per cent on the assumption that nonproduction workers get more of such benefits. Adjusted figure are shown in parentheses.

(3) Includes wages, dearness allowance and cash benefits which is our definition of "wages".

Figures are for 2(j) factories throughout.

TABLE A-2

CMI DATA ON WAGES AND EMPLOYMENT OF PRODUCTION WORKERS IN WEST PAKISTAN

Year	Employment	Wages	Money wage rate
	(numbers)	(thousand rupees)	(rupees)
All Industries			
1954	1,26,457	1,24,044(1)	980.9(966.2)
1955	1,85,185	1,65,865(1)	895-7(882.3)
1957	2,07,911	2,02,870(3)	975-8
1958	2,34,568	2,29,936(2)	980.3(1,019.5)
1959/60	2,65,828	2,84,610(3)	1,070.7
1962/63	2,97,206	3,07,747(3)	1,035.5
1963/64	2,86,118	3,17.369(3)	1,109.2
Textiles			
1954	69,741	68,236(1)	978.4(963-7)
1955	99,525	93,949(i)	944.0(929.8)
1957	1.H.343	1,06,651(3)	957-9
1958	1,30,696	1,21,762(2)	931.6(968.9)
1959/60	1,42,872	1,46,055(3)	1,022.3
1962/63	1,51,754	1,58,070(3)	1,041.6

Notes: **(1) Includes noncash benefits which are 1.7 per cent vide 1957 CMI and 1.2 per cent vide 1962/63 CMI. We make a 1.5-per-cent downward adjustment.**

(2) Cash benefits are excluded; these are 7 per cent in 1959/60 **and 4 per cent in 1962/63. We make a 4-per-cent upward adjustment.**

(3) Includes wages, dearness allowance and cash benefits which is **our definition of "wages". Figures in parentheses are** the **adjusted money wage rates.**

1962/63 and 1963/64 **figures include 5(1) factories while other years include only 2(j) factories.**

TABLE A-3

GENERAL CONSUMER PRICE INDEX FOR INDUSTRIAL WORKERS: 1954=100

Year			East Pakistan	West Pakistan	Karachi	Lahore
1955	..	..	101.2	96.8	97.9	96.6
1956	..	..	112.5	98.8	100.7	99.6
1957	..	..	118.5	107.3	108.2	107.3
1958	..	..	122.5	109.2	109.4	108.7
1959	..	..	126.0	110.5	111.3	108.7
1959/60	..	..	128.7	114.3	..	..
1960	..	..	129.1	117.6	115.4	116.3
1961	..	..	132.7	121.9	118.1	121.7
1962	..	..	136.9	122.1	118.9	122.2
1962/63	..	..	138.0	121.2	..	..
1963	..	..	139.0	124.3	..	..
1963/64	..	..	..	127.4	..	..

Notes: East Pakistan refers to the Narayanganj index. West Pakistan refers to the average of the indices of Karachi, Lahore, and Sialkot. All indices are from [6] but they are recalculated with base 1954. CSO index is shown for fiscal year. Calendar-year values are obtained by taking the simple average of the two adjacent fiscal-year values.

East Pakistan wages are deflated by the East Pakistan index while West Pakistan (including Karachi) wages are deflated by the West Pakistan index. HLS perennial series for Karachi is deflated by the Karachi index while the HLS perennial series for the rest of West Pakistan is deflated by the Lahore index.

TABLE A-4

MONEY WAGES IN SELECTED INDUSTRIES

A. EAST PAKISTAN

Industry	1954	1955	1957	1958	1959/60	1962/63
Cotton textiles	717.0 (717.0)	751.2 (742.3)	735.0 (623.3)	715.9 (584.4)	788.1 (612.4)	835.9 (605.7)
Jute textiles	881.2 (881.2)	873.3 (862.9)	777.7 (656.3)	848.7 (692.8)	987.0 (766.9)	1,163.5 (843.1)
Food manufacturing	597.9	576.9	843.9	912.9	794.3	799.5
Paper and paper products	—	—	1,778.9	1,232.4	1,357.9	2,766.5
Printing and publishing	1,222.3	839.3	1,144.7	1,108.7	1,161.5	1,201.7
Leather and leather products	623.6	929.3	880.0	893.5	889.3	935.3
Chemicals	676.7	501.7	787.5	1,120.1	841.8	903.5
Nonmetallic minerals	754.8	771.9	721.2	770.3	833.9	803.5
Transport equipment	1,077.5	645.2	1,247.2	1,015.3	1,206.3	1,224.4
Metal products	955.4	865.4	911.0	948.1	994.7	978.1
Miscellaneous	855.2	436.4	1,218.6	1,022.0	1,194.8	1,178.2

—(Contd.)—

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TABLE A-4—(Contd.)

MONEY WAGES IN SELECTED INDUSTRIES

B. WEST PAKISTAN

Industry						1954	1955	1957	1958	1959/60
Cotton textiles	..	..	..			986.4	1052.3	972.9	940.6	1037.9
Food manufacturing	..	..	..			872.0	850.8	966.1	982.5	1003.9
Footwear and other apparel	..	..	..			1,161.8	905.7	1,009.6	1,377.5	1,461.5
Printing and publishing	..	..	..			1,121.8	1,160.7	1,157.7	1,277.9	1,458.1
Chemical and chemical products	..	..	..			1,113.6	880.3	989.3	1,069.6	1,249.8
Nonmetallic mineral products	..	..	..			1,029.9	1,053.9	1,065.5	1,166.4	1,092.5
Basic metal	..	..	..			959.5	1,013.1	1,060.5	1,024.9	1,168.4
Metal products	..	..	..			950.0	816.6	841.0	815.6	960.4
Nonelectrical machinery	..	..	..			931.0	808.7	834.4	864.7	1,020.3
Transport equipment	..	..	..			1,085.1	776.6	1289.2	1165.2	1,298.1
Electrical machinery	..	..	..			872.5	—	966.8	989.4	1,065.5
Miscellaneous	..	..	..			844.5	515.9	932.3	975.8	933.9

Note: 1. Figures in parentheses are corresponding real wages in 1954 constant purchasing power.

2. We show money wages. Real wages are shown in parentheses for jute and cotton textiles in East Pakistan only. For others, real wages can be estimated by dividing money wages by the relevant cost-of-living index shown in Appendix Table A-3.

3. We do not make the adjustments discussed in Subsection III.3. To make them, wages in 1954 and 1955 have to be reduced a little (3 per cent in East and 1.5 per cent in West) and wages in 1958 have to be raised a little (3 per cent in East and 4 per cent in West).

4. In Subsection III.2 of the text we have discussed the rather sharp decline in the wage rates of certain industries in 1955 over 1954. We have also discussed the possible cause of the violent fluctuation in East Pakistan food-processing industries. Some of the other sharp changes that we find hard to explain are:

a) Over a 100-per-cent increase in wages in paper industry in East Pakistan in 1962/63 over 1959/60;

b) Over a 40-per-cent increase in chemicals wages (due primarily to rise in wages in match industry) in East Pakistan in 1958 over 1957.

TABLE A-5

PRICES OF TEXTILES

Year				East Pakistan		West Pakistan
				Cotton textiles	Jute textiles	Cotton textiles
1954	..	..	..	100.0	100.0	100.0
1955	..	..	..	93.7	106.8	81.8
1957	..	..	..	97.4	111.0	102.3
1958	..	..	..	104.7	103.7	96.5
1959/60	..	..	..	114.9	123.6	107.6
1962/63	..	..	..	118.1	129.7	104.0

Note: Source of data for the period 1957 to 1962/63, [7]. Before that for cotton textiles in East the prices of indigenous cloth and for cotton textiles in West the prices of medium cloth from *A Measure of Inflation in Pakistan*, 1951-60 [8] have been spliced into the series. For jute textiles for years before 1957 the source of price information is [3]. Indices have been recalculated with base 1954.

Appendix B

ALTERNATIVE ESTIMATES OF THE COST-OF LIVING AND
REAL-WAGE INDICES FOR EAST PAKISTAN

In the new CSO General Consumer Price Index for Industrial Workers in Narayanganj, nine food items have together 81.42 per cent of total food weights and their *relative* weights are [6]:

		(per cent)
Wheat		2.7
Rice		58.7
Pulses		4.6
Milk		6.8
Edible oils		6.4
Meat		5.3
Fish		9.9
Tea		2.8
Sugar		2.8
	Total:	100.0

Retail prices of these goods in Narayanganj are shown in [7, p. 372]. Using these prices and the above relative weights we calculate the price index for these nine food items.

An examination of [7] reveals that other food prices have also been rising in this period. But since we want to estimate the minimum increase in food cost of living, we assume other food prices absolutely constant in the years following 1954/55. We, therefore, estimate for each year the minimum cost-of-living index for food as follows :

$$P^f_M = .8142\ P^f_K + .1858\ (100.0)$$

where

P^f_M = estimate of the minimum cost-of-living index for food;

P^f_K = price index for our nine food items using relative weights shown in [6];

.8142 = total weights of the nine items in CSO's food price index for industrial workers;

.1858 = $(1 - .8142)$ = weight of all other food.

We obtain our revised minimum cost-of-living index (P_M) according to the following formula:

$$P_M = .6977\ P_M^f + .3023\ P_{CSO}^{nf}$$

where

P_{CSO}^{nf} = CSO's nonfood cost-of-living index for industrial workers (estimated from [7], and .6977 and .3023 are weights of food and nonfood items respectively in CSO's new cost-of-living index (*see* [6]).

Table B-1 shows the above computations. Note that our minimum food price index shows a much greater increase than CSO's, but still considerably less than Lewis-Hussain's. The revised cost-of-living index shows a much greater increase than does the CSO cost-of-living index which is our wage-deflator in the text.

TABLE B-1

Year			P	P^f	P^{nf}	P_K^f	P_M^f	P_M
1953/54	..	..	100.0	100.0	100.0	100.0	100.0	100.0
1954/55	..	..	86.1	82.2	98.0	83.1	83.1	87.6
1955/56	..	..	102.2	103.9	97.0	102.2	101.8	100.3
1959/60	..	..	119.7	121.1	115.4	144.3	136.1	129.8
1960/61	..	..	120.5	120.5	120.5	133.2	127.0	125.0
1961/62	..	..	125.2	124.5	127.3	149.2	140.1	136.2
1962/63	..	..	129.3	128.5	131.8	158.8	147.9	143.0

Note: P=CSO general cost-of-living index. P^f=CSO cost-of-living index for food. P^{nf}=CSO cost-of-living index for nonfood. Base for these three changed to 1953/54. P_K^f=price index for nine food items. P_M^f=our minimum food cost-of-living index. P_M=our alternative minimum cost-of-living index.

Table B-2 shows real wages in East Pakistan estimated by deflating money wages by the revised cost-of-living index. Real wages in aggregate industries, jute textiles and cotton textiles decline rather sharply over the decade — respectively by 13 per cent, 13 per cent, and 24 per cent. The corresponding rates of decline by using the CSO cost-of-living index are respectively 4 per cent, 5 per cent, and 15 per cent.

TABLE B-2

REVISED REAL WAGES IN EAST PAKISTAN

Year			All industries	Jute textiles	Cotton textiles
1954	..	..	794.5	881.2	717.0
1955	..	..	709.3	871.6	749.7
1959/60	..	..	685.8	713.2	569.4
1962/63	..	..	693.3	763.0	548.1

We have done the calculation for East because the comparison between CSO food prices and Lewis-Hussain food prices (text Table VI) shows that the CSO seriously understates the increase in East while in West the understatement is relatively small. Moreover the recalculation of the index is comparatively easy in East where it is shown for only one centre. In West Pakistan the cost of living is estimated at several centres. It seems to us that a similar revision of the West Pakistan index will show that the CSO index is an understatement, but not nearly by as much as in East Pakistan.

Trend of Real Income of the Rural Poor in East Pakistan 1949-66

Swadesh R. Bose

Trend of Real Income of the
Rural Poor in East Pakistan
1949-66

Swadesh R. Bose

SCOPE OF THE STUDY

Pakistan's gross national product lias been rising over time. While GNP per capita remained practically unchanged during **the 1950's,** it increased appreciably in the **1960's.** **The trend of per capita income does not, however, indicate whether, and to what extent, economic development had 'trickle down' effects to improve the** lot of the **relatively poorer sections of society.** **Studies of intertemporal changes in inequality of income distributions and in levels of income (consumption) could show what changes actually took place in their absolute and relative income positions.**

"Diminishing inequalities in the **distribution of income" is one of the professed objectives of Pakistan's Third Five-Year Plan [24, p. 40].** **This objective implies both an absolute and a relative improvement in the income level of the poorer sections of population.** **The two studies, which are known to have been made on income distribution in Pakistan, do not cover enough ground to indicate whether this was achieved in the past: the study by Mrs. Haq [10] is limited to personal income distribution in the high-income brackets (income-tax payers) in urban areas for the period 1948/49 to 1960/61, and that by Bergan [1], although comprehensive, refers to a single year, 1963/64.**

It is, however, generally held that Pakistan's pattern of development has generated increasing income inequalities among classes (and also between

the two wings). The development strategy has placed major reliance on private enterprise and sought to generate a higher saving rate through redis- tributing income in favour of those groups whose saving rates are considered to be relatively high. This has meant an increasing concentration of income in the hands of a small group of wealthy industrialists. Apparently, some nonindustrial groups in trade, profession and services also experienced large increases in their incomes. One cannot even exclude the possibility that the process of economic development redistributed income in such a way and to such an extent that the bottom group (say, the quartile) in the income scale has become absolutely poorer while per capita income of the popula- tion as a whole increased.

About two years ago, Griffin [8] suggested, on the basis of some im- portant, although inadequate, data that the real income of Pakistan's rural population declined from 1949/50 onwards till the early 1960's whence- forward it gradually rose to the 1949/50 level in 1964/65. Griffin's provo- cative remarks have not been followed up by any research into the changes over time in the level of real income (consumption) of the poorest sections of society in rural areas[1].

The present writer's efforts to make such an enquiry have been hindered by nonavailability of necessary information. This paper, much more restricted in scope than was originally intended, presents the preli- minary findings of an attempt to indicate in an indirect way the changes in the level of real income of the bulk of the poorest people in rural East Pakistan from 1949 to 1966. It does not represent a comprehensive study of the intertemporal changes in the inequality of income (consumption) distribu- tion and the levels of living of the various sections of the rural population of East Pakistan. Such a study does not appear to be feasible for lack of necessary historical data[2].

The Central Statistical Office's multipurpose sampling enquiry (National Sample Survey) which collected data on consumption and income of rural households began as late as 1959, and only three rounds (1959, 1960

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[1]Griffin has been rightly criticised by Bergan [1, p. 172] for assuming that *agricultural* income is the only income that acrues to the *rural* population. It is, however, very doubtful if the inclusion of income accruing to rural population for their activities in nonagricultural sectors (if such income could be estimated) would show a rising trend of per capita income in rural areas.

[2]Given expenditure distributions *(i.e.,* distributions of persons by total monthly or yearly per capita consumption expenditure, at current prices) relating to different periods, and given the appropriate consumer price indices with which to bring the distributions to some common set of prices, one could attempt an estimate of the intertemporal changes in inequality or level of living. The appropriate consum- er price index is unlikely to be the same for all levels of living (income-consumption groups). Hence, if the index varies with the level of income or consumption, it would be necessary to work out not a single price deflator but a set of price deflators, one deflator for each income-consumption group for comparing intertemporal changes in levels of living and inequality of expenditure (income) distributions. About the need for a set of deflators, *see* Iyengar and Bhattacharya [12].

and 1961) are available. The same enquiry restarted in 1963/64[3] and so far only the 1963/64 survey is available. Because of the short period of time covered by these surveys and the admittedly poor quality of the 1959 Survey, one cannot use them for the purpose of studying the long-term changes in the income-consumption level of the poorest among rural population. They may, however, be used as evidence of such changes (as is shown in Appendix C and Appendix Table C-1) in the early 1960's[4].

Main Assumptions and Findings

Since these limitations of available data preclude any direct estimation of long-term changes in real income of the rural poor, some indirect and somewhat crude methods are used in this study. The main assumptions which underlie the statistical computations and their interpretations are the following:

An increase in income of the poorest section of rural population would not take place in the absence of an increase in average incomes of agricultural population and rural population.

An increase in per capita income in agriculture would show up in rising crop yield and higher monetary returns from land per head of agricultural population.

Those who are agricultural labourers by chief occupation constitute the bulk of the poorest among rural people and any increase in their real income must show up in the movement of real wages which are the major source of their income.

It is assumed that the dependency ratio per labourer has remained unchanged since 1949.

On these assumptions, the estimated movement of per capita rural income, per capita income in agriculture, crop yield, and real wages, shown in Sections II and III suggest a decline in the real-income level of the poorest stratum of rural population of East Pakistan in the 1950's and no significant rise in the 1960's.

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[3]It has been re-named *Quarterly Survey of Current Economic Conditions* which covers both urban and rural areas.

[4]It has, however, been pointed out by Mahalanobis [16] that frequency distributions in which the class ranges are fixed in terms of money value of per capita expenditure (or income) have limitations for purposes of intertemporal comparisons of levels of living. Even when price changes are corrected by use of the price deflator(s), a fixed range frequency class (income or expenditure) would represent different fractile groups in two or more periods and would not be comparable in any important sense.

II. EVIDENCE OF MOVEMENT OF PER CAPITA FACTOR INCOMES OF AGRICULTURAL AND RURAL POPULATIONS

We begin with the observation of estimated changes in real incomes of rural, and agricultural populations of East Pakistan, and urban-rural disparity in per capita income. A clear distinction is made between rural and agricultural population, and between rural factor income and factor income in agriculture. Rural population is larger than agricultural population because rural areas contain almost all people engaged in agriculture, and also a large proportion of nonagricultural population. Similarly, total rural factor income is larger than factor income (gross value added) in agriculture.

Table I presents some estimates of per capita factor incomes of total, agricultual, rural and urban populations of East Pakistan from 1949/50 to 1963/64. The series could not be made upto-date because province-wise breakdown of Pakistan's national income data has not been published, or

TABLE I

PER CAPITA FACTOR INCOMES OF TOTAL, AGRICULTURAL, RURAL AND URBAN POPULATIONS OF EAST PAKISTAN

(in rupees at 1959/60 prices; the last column is in per cent)

Year	Gross provincial product per capita	Agricultural value added per head of agricultural population	Per capita rural income	Per capita urban income	Per capita rural income as % of urban
	(1)	(2)	(3)	(4)	(5)
1949/50	285	228	271	609	44
1950/51	289	229	274	619	44
1951/52	290 (290)	225 (228)	274 (275)	634	43
1952/53	292	228	277	619	45
1953/54	295	230	280	615	46
1954/55	282	216	265	617	43
1955/56	263	194	247	597	41
1956/57	281 (271)	212 (201)	261 (253)	666	39
1957/58	270	199	253	607	42
1958/59	275	184	238	616	39
1959/60	271	196	252	618	41
1960/61	279	203	259	644	40
1961/62	289 (285)	207 (202)	267 (268)	671	40
1962/63	281	195	258	696	37
1963/64	305	207	279	755	37

Note: Figures in parentheses are five-year averages.   *Sources:* Appendix Tables A-1 and A-2, and explanatory notes.

TABLE II

CROPPED LAND PER HEAD, CROPPING INTENSITY AND YIELD

Period (July–June)	Cropped area per head of			Cropping intensity	Rice yield per acre	Rice output per head of agricultural population (1959/60 prices)	Total agricultural value added per acre of net cropped land (1959/60 prices)
	Agricultural population		Male agricultural labour force				
	Gross	Net	Net				
	(A)	(B)	(B)	(C)	(D)	(E)	(F)
	(· · · · · · · · acres · · · · · · · · ·)			(per cent)	(· · · · · maunds · · · · ·)		(rupees)
1948/49	n.a.	n.a.	n.a.	131.0	10.8	n.a.	n.a.
1949/50	.73	0.57	n.a.	127.7	10.3	5.9	402
1950/51	.72	0.56	2.07	127.8	10.0	5.5	406
1954/55	.68	0.52	n.a.	131.4	9.7	5.0	415
1955/56	.62	.049	n.a.	127.0	8.9	4.4	393
1959/60	.58	0.45	n.a.	129.6	10.9	4.9	439
1960/61	.58	0.44	1.74	131.6	11.8	5.2	460
1961/62	.56	0.45	n.a.	130.8	12.3	5.3	478
1962/63	.56	0.42	n.a.	132.5	11.1	4.7	463
1963/64	.55	0.41	n.a.	133.7	12.8	5.2	503
1964/65	n.a.	n.a.	n.a.	n.a.	12.3	n.a.	n.a.
1965/66	n.a.	n.a.	n.a.	n.a.	12.2	n.a.	n.a.
1966/67	n.a.	n.a.	n.a.	n.a.	12.9	n.a.	n.a.

Notes:

$$C = \frac{A}{B} \times 100$$

$$E = B \times D$$

n.a. means not available.

Sources: Net cropped area: [5].
Acreage and output of rice, CSO [20] and [23].
Male labour force: [17].
For others, same as for Table I.

made available to the author for any year after 1963/64. (The estimates of agricultural, rural and urban populations, and of rural and urban incomes are shown in Appendix Tables A-1 and A-2 which are followed by explanatory notes.)

Tables II shows some historical data on cropped area per head of agricultural population, cropping intensity, and yield.

Agricultural stagnation, slow industrial development and rapid population growth characterised the economy of East Pakistan in the 1950's. This resulted in a lower per capita income in the late 1950's than in the early 1950's. Only in the 1960's a slight reversal in the movement of per capita income appears to have begun. As Table I shows, the average per capita income during 1949/50 to 1953/54 was 290 rupees, during 1954/55 to 1958/59 271 rupees, and during 1959/60 to 1963/64 285 rupees. During the four-year period, 1959/60 to 1962/63, it was only 280 rupees.

Decline in Per Capita Income in Agriculture

The decline in per capita income of agricultural population was even more pronounced. As Table I shows, from about 228 rupees in the early 1950's it went down to 201 rupees in the late 1950's and to 202 rupees in the early 1960's. But if 1963/64 is excluded, the average for the period 1959/60 to 1962/63 becomes only 200 rupees. There is little doubt that the fall in per capita income of agricultural population during the 1950's has not been made good by the slight reversal observed in 1963/64.

Agricultural income data used in this paper are based on the CSO estimates and include value added in fishing, forestry as well as crop production. However, output of crops accounts for 80 per cent of total agricultural income. One can, therefore, go a step further and see whether the combined effect of changes in land per head and yield per acre appears to support the observed decline in per capita factor income in agriculture. It is clear from Table II that both net and gross cropped area per head of agricultural population has declined significantly since 1949/50. The increase in cropping intensity has been too insignificant to offset the decline in net cropped area per head resulting from virtually given land and rapidly growing population. The yield of rice which accounts for over 50 per cent of gross value added in agriculture decreased in the mid-1950's but showed some increase in the 1960's. However, the per cent increase in yield has been smaller than the per cent decrease in cropped acreage per head, so that output of rice per head of agricultural population has been lower in the mid-1950's and the early 1960's than in the early 1950's.

A recent study [15] has shown that the agricultural sector consumes about 80 per cent of rice output and sells about 20 per cent to the nonagricultural sector, and that the wholesale price of rice declined both absolutely and relative to the price of cotton textiles (and other consumer manufacturers) from 1951/52 to 1955/56 but registered some increase from 1956/57 to 1963/64. This indicates that the real returns from the marketed portion of rice output per head of agricultural population clearly declined in the earlier period but may have improved somewhat in the later period.

The decline in gross value added in agriculture per head of agricultural population, as shown in Table I, is at constant agricultural prices of 1959/60. We have implicitly assumed so far that this decline measures the decline in per capita real income of agricultural population. There may, however, be objections to this on two grounds. One is the movement of the terms of trade of the agricultural sector, and the other is income earned by agricultural population from subsidiary occupations.

Since the agricultural sector sold a part of its output to other sectors in exchange for certain products, a decline in the prices of these products, relatively to agricultural prices, could partly or fully offset the decline in per capita income in the sector measured in the way stated above. There was, however, no such offsetting influence. For one, the proportion of agricultural output sold outside the sector was likely to be considerably less than 50 per cent. Secondly, as Lewis and Hussain [15] have shown, the terms of trade were actually moving against agriculture till the late 1950's and only since then there has begun a reversal of this trend.

It is agricultural output which essentially determines the income level of agricultural population. Inclusion of income earned by agricultural population from subsidiary occupations would only slightly raise the absolute level of per capita income in all years, but would not alter the observed trend over time. Moreover, income from subsidiary occupations is included in our estimate of per capita rural income which also moved roughly in the same direction as per capita income in agriculture, as we shall presently see.

One would expect that decline in per capita factor income within the agricultural sector would be accompanied by a similar decline in income of the poorer people in the sector, unless the relative income of these people was sufficiently raised by a change in the distribution of income within the sector. But there appears to be no reason why such a redistribution should have taken place over time in favour of poorer agriculturists and agricultural wage labourers. On the contrary, it is reasonable to maintain, as was observed by Papanek [25], that whatever increase in agricultural production occurred in the 1960's has accrued mainly to large farmers who could obtain

subsidised fertilizers and some benefits from the government's agricultural development programme.

Fall in Per Capita Rural Income and Increase in Rural-Urban Disparity

As can be seen from Table I, per capita rural income declined from 1949/50 to 1958/59. Although a reversal began from 1959/60, the income level was still lower in 1962/63 than in 1949/50; only in 1963/64 it rose slightly above the 1949/50 level. From an average of 275 rupees during 1949/50 to 1953/54, it fell to 253 rupees during 1954/55 to 1958/59 and moved to 268 rupees during 1959/60 to 1963/64. If 1963/64 is excluded, the average for 1959/60 to 1962/63 comes down to 259 rupees only.

Per capita urban income increased steadily, although slowly, during the entire period. It rose from just over 600 rupees in the early 1950's to about 700 rupees in the early 1960's. As a result, rural-urban disparity in *factor* income per capita has increased. The ratio of per capita rural income to urban has gone down from 44 per cent in 1949/50 to 37 per cent in 1963/64. This differs from Bergan's estimate of 60 per cent for 1963/64 [1, p. 172] based on the CSO's quarterly survey [22]. Total population and its rural-urban distribution used in our estimates are practically the same as in Bergan's. These two estimates are not, however, strictly comparable, because Bergan's measure relates to disparity in *personal* income per capita, while our estimate is based on *factor* income.

There is also some transfer of income between rural households and urban households. Those urban households which receive income remittances from rural areas are usually rich (mainly landlords and businessmen) and those rural households which receive remittances from urban areas are usually poor. If these transfers are taken into account, the average per capita factor income accruing to rural population may not be changed very much. But what is likely is that the income enjoyed by the poorer rural people could be found to be higher when these transfers are taken into consideration. We do not know how much higher, but it is unlikely to be very much. This is because urban employment did not increase fast enough to make such remittances significantly large.

The decline in agricultural value added per head of agricultural population and in per capita rural income indicates, if anything, that the real income of the poorest stratum of rural population declined over time, perhaps quite appreciably. This decline is very likely to show up in the movement of real income of agricultural labourers who constitute a large segment and are among the poorest of rural population in East Pakistan. This is considered in the following section.

III. EVIDENCE OF DAILY WAGE RATES AND WAGE EARNINGS OF AGRICULTURAL LABOURERS—THE POOREST OF THE RURAL POOR

Size of Landless Agricultural Labour Force and Sources of its Income

In rural areas, income is derived chiefly from agriculture and, therefore, landlessness and extreme poverty go together. Although self-employment far outweighs wage-employment in agriculture, and cultivators (owners and tenants) outnumber landless agricultural labourers, the latter constitutes a large proportion of the agricultural labour force in East Pakistan. This proportion has been rising over time. During the period 1951-61, its relative importance in agricultural labour force rose from 14 per cent to 17 per cent (Table III). Census data show that in this period, while agricultural labour force increased by 33.8 per cent the number of landless labourers increased by 63.6 per cent.

TABLE III

COMPOSITION OF AGRICULTURAL LABOUR FORCE BY LAND TENURE AND SEX: EAST PAKISTAN, 1951 AND 1961 — PERSONS OF AGE 12 YEARS AND ABOVE

Year	Sex	Owning all land tilled	Part-owner, part-tentant or full tenant	Owner-tenant or full tenant who also works for hire	Landless agricultural labourers	Total agricultural labour force including others	Landless agricultural labour as % of total
		(A)	(B)	(C)	(D)	(E)	(F)
		(. . . . . *in million* . . . .)					*(per cent)*
1951	Both sexes	3.74	4.96	0.41	1.51	10.72	14.09
	Males	3.38	4.67	0.39	1.40	9.90	14.14
	Females	0.36	0.29	0.02	0.11	0.82	13.41
1961	Both sexes	5.01	5.60	1.01	2.47	14.34	17.22
	Males	4.74	3.75	0.98	2.33	12.00	19.42
	Females	0.27	1.85	0.03	0.14	2.34	5.98
	Per cent Change						
1951-61	Both sexes	34.0	12.9	146	63.6	33.8	
	Males	40.2	—19.7	150	66.4	21.2	
	Females	—25.0	537.9	50	27.3	185.4	

Sources: [17, 1951, Vol. I, Table 14; 1961, Vol. II, Table 51].

It should be noted, however, that the increase in total agricultural lab-
our force, as shown by the census (Table III, Column (E)) is, to a considerable
extent, illusory, while the increase in landless agricultural labourers (Column
(D)) is not. This is because there is apparently a distinct underenumeration
of female agricultural labour force in the 1951 Census. Out of a total in-
crease of 3.62 million in agricultural labour force (Column (E)), 1.52 million
is attributed to female labour force which is shown to have increased from
0.82 million in 1951 to 2.34 million in 1961, *i.e.*, an increase of 184 per cent
in ten years. There is no evidence of any great social change which can
explain this enormous increase in female participation. It seems, however,
that there is no such underenumeration of female landless labourers (Column
(D)) in the 1951 Census. Out of the total increase of 0.96 million in the
landless agricultural labour force, only 0.03 is attributed to females. Also
the increase in the numbr of owners and tenants who also work for hire
(Column (C)) is almost entirely attributed to males.

Since the decline in land holding per head has driven an increasing
number of small owners and tenants into the employment market for at
least a part of the year (Column (C)), the effective supply of man-days seeking
employment in agriculture is even greater than indicated by the increas-
ing number of landless agricultural labourers. It does not follow, however,
that wage employment in agriculture (or in rural areas in general) increased
in the same proportion.

The main sources of current account income of families of agricultural
labourers are presumably *a*) cultivation of land, if any land is held, *b*) agri-
cultural labour, *c*) nonagricultural labour, and *d*) other nonfarming activities,
such as handicrafts. No historical series of income of such households is
available. But wage earnings, particularly those in agriculture, are likely
to be the most important component of their income, and we shall mainly
consider this component.

For families of agricultural labourers without any land, wages con-
stitute almost the total income. For all such families with or without land,
sampling enquiries made in India indicate that agricultural wages accounted
for 64 per cent and 73 per cent of income in 1950/51 and 1956/57 respectively,
and nonagricultural wages earnings were respectively 12 and 8 per cent of
income in those years [29]. A survey conducted by the Rajshahi Univer-
sity(hereinafter called the Survey) in East Pakistan for 1965/66 [28] indicates
that 53 per cent of income of families of agricultural labourers was derived
from wage earnings (see Appendix Table A-4). But in view of the high
proportion of landless labourers in agricultural labour force as shown by the
census, this estimate for East Pakistan appears to be low.

Sources of Wage Data

Except for the excellent *Report* by Darling [2], the conditions of agri-
cultural labourers and their wages in Pakistan have remained practically an
untouched field.   Available statistics are also very scanty and poor in quality.
No serious importance is attached to collection of such statistics.   At the
same time, the large number of small employers and the conditions obtaining
in agriculture and rural life in general make the task very difficult.   For
studying the movement over time of wage earnings of agricultural labourers,
we had to make do with the little bits of available data.

The only source of historical data on agricultural wages in East
Pakistan is the Directorate of Agriculture, East Pakistan.   It prepares a
Weather and Crop Report [6] either for every week or for every month, which
is published in the supplement to the *Dacca Gazette*.   It reports the daily
money wages for every week or every month in each district of East Pakistan.
The series is available from 1948 onwards.   The reported wage rate for each
district is based on an unweighted average of the rate obtaining in the sub-
divisions of the district.   The wage rate in each subdivision is reported on
the basis of 'random' queries by agricultural officers to a few local farmers,
and is not weighted by man-days employed during the week or the month.

Limitations of Wage Data and Adjustments Made in the Data

Because of this lack of information on employment, one cannot
directly estimate monthly or yearly wage earnings per labourer.   Another
problem arises due to the prevalence of wage payment in cash-*cum*-kind.

Consider first the method of wage payment in agriculture.   Payment
of wages in money is not universal in East Pakistan's agriculture.   As both
Darling and Habibullah have found [2 ; 9], although wage payment in money
is much more prevalent, in some cases wages are paid partly in money and
partly in kind; *e.g.*, one or two meals a day plus some money.   As the rural
economy becomes increasingly monetized, one would expect money wages
to replace wage payments in kind.   This would imply that the recorded
rise in money wages is partly a replacement of wage payment in kind.
Therefore, if the reporting of money wages by the Directorate includes
cases where payment in kind has been replaced over years by payment in
cash the rise in wages, would be overstated.   However, in the absence of
exact information we may assume that the Directorate reports are based on
cases where only cash wages have been paid during all years.   Further,
employers and labourers may be considered to be sufficiently aware of the
costs and prices of kind payments so that in any small area the purely cash
wage rate would be approximately equal to the cash-*cum*-kind wage rate

expressed in money. This agricultural wage rate is also likely to approxi-
mate the prevailing wage rate for the general run of rural unskilled labourers.

Interdistrict wage differences introduce real difficulties, even if a dis-
trict is considered fairly homogenous. An estimated daily wage for East
Pakistan during any week or month based on a simple average of daily wages
in the constituent districts hardly gives a satisfactory description of reality.
The adjustment one should make is to weight the wage rate in each district
during any month by the number of man-days of agricultural wage labour
employed in that district. But this information is not available. Nor do
we know the number of landless agricultural labourers in each district for
most of the years. We have, therefore, made a simple average of daily
wage rates in districts to obtain the daily wage rate for East Pakistan for each
month. This provincial daily wage rate for each month is then weighted by
the corresponding monthly wage-employment per labourer. An estimate
of the number of days an agricultural labourer in East Pakistan gets wage-
employment in each calender month of the year has been obtained from a
subsample of the Survey. These data on monthly employment have been
used for all years to estimate the average labourer's adjusted daily wage rate
and total annual wage-earnings.

Nominal Wage Rates and Wage Earnings

With these adjustments, the average annual wage-earnings per
labourer and the daily wage rates for the years 1948-66 are presented in
Table IV which also shows the unadjusted daily wage rates reported by the
Directorate of Agriculture.

The estimated yearly wage earnings over time are based on the
implicit assumptions that the seasonal pattern and total days of wage-employ-
ment per year did not change over time in the relevant period. So for as
the adjusted daily wage rate for each year is concerned the implicit assump-
tion is only that the seasonal pattern of wage-employment did not change
over time.

It is reasonable to assume that the seasonal pattern of wage-employ-
ment has not changed in any significant way in the last twenty years. It is,
however, possible and even likely that there has been a decline over time, in
the quantum of yearly employment per agricultural labourer, chiefly because
agriculture remained practically stagnant while rural population grew fast.
It has been noted earlier (Table II) that net cropped area per head declined,
and cropping intensity did not increase at all significantly. There is also
little doubt that cropping pattern remained virtually unchanged, and non-
agriclutural employment opportunities did not expand as fast as population.
Therefore, the assumption of unchanged annual wage-employment per

TABLE IV

NOMINAL WAGE RATES PER DAY AND ANNUAL WAGE EARNINGS
OF AGRICULTURAL LABOURERS IN EAST PAKISTAN

| Year | Nominal wage rates per day | | Annual wage earnings |
	Unadjusted (a)	Adjusted (b)	(c)
	(. . . . .*rupees per worker* . . . .)		
1948	1.81	1.79	464
1949	1.92	1.92	497
1950	1.62	1.62	419
1951	1.56	1.55	402
1952	1.52	1.53	396
1953	1.38	1.38	357
1954	n.a.	n.a.	n.a.
1955	1.32	1.31	339
1956	n.a.	n.a.	n.a.
1957	1.70	1.70	441
1958	1.85	1.86	480
1959	1.85	1.85	478
1960	1.95	1.95	506
1961	2.18	2.18	564
1962	2.25	2.24	581
1963	2.41	2.41	624
1964	2.65	2.65	687
1965	2.34	2.34	606
1966	2.40	2.40	621

Sources and Methods:

Col. (a): Unadjusted daily wage rates as reported by the Directorate of Agriculture and shown in Appendix Table A-3.

Col. (b): Unadjusted wages during each month of the year are weighted by days of employment of an average labourer in each corresponding month, as shown in Appendix Table A-3, to obtain adjusted daily rates for any year.

Col. (c): Wage earnings during any year are estimated by multiplying adjusted daily wage rate during the year by number of days employed in each year (*i.e.*, 259 days) as shown in Appendix Table A-3.

labourer perhaps gives an overestimate of annual wage-earnings per labourer in the later years as compared with those in the earlier years.

Both the adjusted and the unadjusted series shown in Table IV indicate that money wage rates were lower in the early 1950's than in 1949 (or 1948) and began to rise after the middle 1950's, but were above the 1949 level only in the 1960's.

It should be mentioned here that nominal wage rates reported by the Directorate of Agriculture for the early 1950's are corroborated by the evidence of Darling [2] who obtained some first-hand information on daily wages in various parts of the province. However, the officially reported wage rates for the 1960's are considerably higher than the rates reported to the present author by quite a number of people who are supposed to have first-hand knowledge of the situation in rural areas. Moreover, the sub-sample of the Survey shows that the daily wage rate during 1965/66 was about 1.75 rupees which is much lower than that reported by the Directorate. On the other hand, it has been reported by both PARD and Rahman [18; 26] that average daily wage rate during January-June of labourers employed in the Rural Works Programme was 1.50 rupees in 1962, 2.00 rupees in 1963 and 2.40 rupees in 1964, which is more in line with the agricultural wage rates reported by the Directorate. One may, however, still suspect that the wage rates during the 1960's as reported by the Directorate, are probably overestimates.

Consumer Price Index

The real worth of money wages depends on prices of goods *purchased* by labourers from the market. The use of an appropriate consumer price deflator is obviously essential for estimating the real worth of nominal wage earnings. While indices of cost of living of industrial workers are prepared and published by the CSO, no agency or individual has computed a series of cost-of-living or consumer-price index relevant to agricultural labourers. Hence, we have to compute such an index, however crude and imperfect it may be.

The determination of consumption items and of their relative weights for the construction of this index is far from easy, because, unlike industrial workers, agricultural labourers consume some *own-produced* goods. For example, even the landless agricultural labourers do not purchase fuel, or pay house rent. They erect their huts on deserted spots or on the employer's land, and gather from the surroundings firewood and straw for use as fuel for cooking. They also surely catch some fish from public canals and rivers, and perhaps grow some vegetables around the hut. Because of this fringe income in kind total household income is greater than wage earnings.

Agricultural labourers with some land drive some income from cultivation as well, and most of this income is directly consumed in kind, and only part of this is marketed for other purchases. This general pattern of a mixture of market-purchased and own-produced goods in the consumption bundle of families of agricultural labourers has been observed in studies by both Hussain and Rajshahi University [11; 28] covering both small localities and large areas in East Pakistan.

However, so far as landless agricultural labourers are concerned, as rough approximation, one can assume that they have to purchase all consumption items other than fuel and housing. On this assumption, we have estimated the relative weights of various consumption items from the budget data of a subsample of families of agricultural labourers from the Survey. We have excluded from total consumption the imputed value of fuel, and rent, and estimated from the rest the relative proportions of other consumption items at current prices (Appendix Table B-1). These weights have been applied to price relatives based on retail prices of individual items to obtain two series of consumer price index, one taking 1966 price relatives as 100, and the other taking 1949 price relatives as 100[6]. This is done to see if the two indices are significantly different (for the details of weights and prices, *see* Appendix B).

The relative weights of various items, as obtaining in the twelve-month period, August 1965 to July 1966, may be considered reasonably normal. The only important factor that might have distorted the relative weights was the abnormally high price of rice in that period. The implicit average retail price of rice, as estimated from the subsample, was about 31

[6]The two indices are not identical. We have used the same weights (based on 1965/66 expenditure proportions) in both cases. This weight for the i-*th* item can be written symbolically as:

$$\frac{P_i^{65} \ q_i^{65}}{\sum P_i^{65} \ q_i^{65}}$$

Then our index in year t for the i-*th* item will be as follows, when 1949 is the base year:

$$\frac{P_i^{65} \ q_i^{65}}{\sum P_i^{65} \ q_i^{65}} \times \frac{P_i^t}{P_i^{49}} \times 100 = I_1 \dotfill (1)$$

But the expression will be as follows, when the base is 1966 instead:

$$\frac{P_i^{65} \ q_i^{65}}{\sum P_i^{65} \ q_i^{65}} \times \frac{P_i^t}{P_i^{66}} \times 100 = I_2 \dotfill (2)$$

From expressions (1) and (2) we can see that $I_2 = I_1$, if $\dfrac{P_i^{49}}{P_i^{66}} = \lambda$

It follows that $\sum I_2 = \lambda \sum I_1$ (*i.e.*, the composite index based on 1966 is λ times the index based on 1949), if $\dfrac{P_i^{49}}{P_i^{66}} = \lambda$ for all i's, which is very unlikely.

rupees per manud. This was somewhat higher than the prices obtaining in the earlier three or four years. A higher price of rice — a basic need and the most important consumption item—would usually give a large weight to it and, hence, smaller weights to other items. But in this particular case there was an offsetting factor. This was the substitution of some wheat for rice. Increasing quantities of wheat at prices substantially lower than those of rice have been made available to East Pakistan, including its rural areas, since the early 1960's. There is little doubt that both the absolute quantity of wheat and the proportion of total expenditure spent on wheat by rural households were higher in the mid-1960's. Therefore, the estimated relative weight can be considered as reasonably normal. These weights are roughly in line with the findings of several other surveys, as shown in both Hussain and Rao [11 ; 29].

There is another way of roughly judging the reasonableness of these relative weights. We may ask whether the wage earnings of a family in recent years could be considered adequate for sheer subsistence and whether its allocation in the way indicated by the estimated relative weights would buy such quantities of basic consumption goods as are necessary for subsistence. Assuming that an average agricultural labour family has 4.5 members including 1.1 wage earners, as shown by the Survey[7], it may be said that these conditions are roughly met. ?

It should be emphasised that our consumer price index is almost certainly an underestimate. This is chiefly because of the constant price assumption for 17.5 per cent of household expenditure[8] and because coarse *saree* prices are assumed to represent clothing as a whole. As a matter of fact other varieties of cloth such as shirting and long cloth registered greater increases in price than *sarees*.

Movement of Real-Wage Earnings

Nominal-wage earnings are deflated by each of these two consumer price indices, and these two indices and estimated real-wage earnings are shown in Table V. The price index based on 1949 along with indices of nominal- and real-wage earnings are plotted in Figure 1.

Estimates of real-wage earnings based on the two consumer price indices appear to indicate an essentially similar pattern of change over the relevant period. It appears from both series that real-wage earnings were lower in any year during the period 1951-60 than in 1949 or even 1950.

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[7] *See* Appendix Table A-4.

[8] *See* Appendix B.
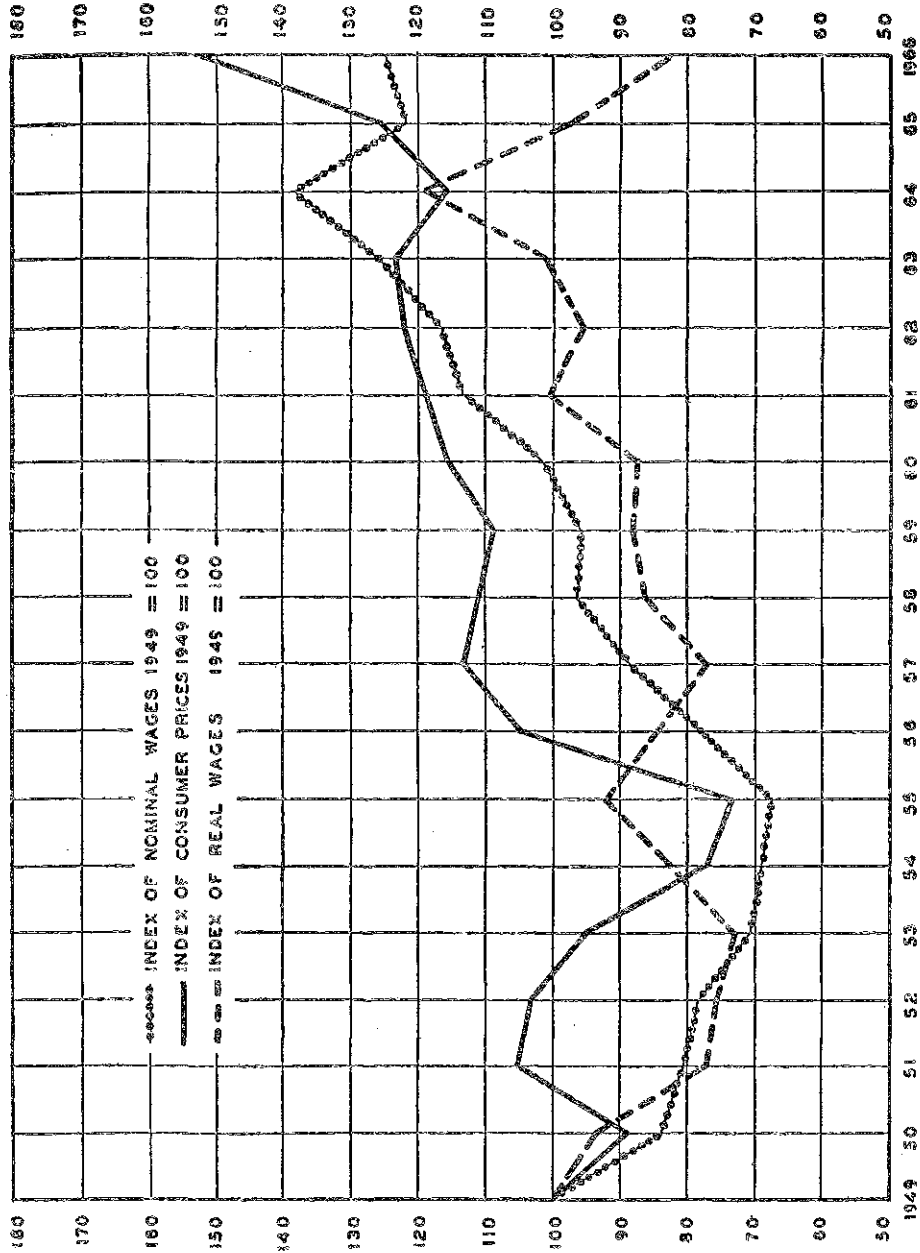
Figure 1

Note: Figures for 1954 and 1956 not available for index of nominal wages and real wages.

TABLE V

NOMINAL-WAGE EARNINGS, CONSUMER-PRICE INDEX AND REAL-WAGE EARNINGS

Year	Nominal wage earnings	Consumer-price index		Real-wage earnings			
		based on 1949 (A)	based on 1966 (B)	Nominal earnings deflated by index (A) based on 1949		Nominal earnings deflated by index (B) base on 1966	
	(*rupees*)			(*Rs.*)	(*Index*)	(*Rs.*)	(*Index*)
1949	497	100.0	71.3	497	100.0	697	112.1
1950	419	89.2	63.1	471	94.8	666	107.1
1951	402	104.8	73.3	386	77.7	549	88.4
1952	396	103.7	70.5	383	77.1	562	90.5
1953	357	95.5	69.6	363	72.9	513	82.5
1954	n.a.	77.6	57.6	n.a.	n.a.	n.a.	n.a.
1955	339	73.6	53.7	461	92.8	635	102.3
1956	n.a.	105.5	71.5	n.a.	n.a.	n.a.	n.a.
1957	441	112.9	77.6	389	78.1	567	91.3
1958	480	110.7	75.9	435	87.5	632	101.7
1959	478	108.8	74.7	440	88.5	642	103.3
1960	506	115.4	79.5	438	88.0	635	102.1
1961	564	113.2	76.9	500	100.5	733	117.9
1962	581	121.9	82.4	477	96.0	704	113.4
1963	624	123.3	82.5	505	101.6	756	121.7
1964	687	115.7	80.5	593	119.3	852	137.1
1965	606	125.6	83.5	482	96.9	723	116.2
1966	621	152.2	100.0	409	82.3	621	100.0

Sources: Nominal-wage earnings reproduced from Table IV. Consumer-price indices based on weights shown in Appendix Table B-1, Column (6) and retail prices of items discussed in Appendix B. Real-wage earnings are obtained by deflating nominal-wage earnings by each price index.

The fall from the level of 1949 or 1950 was quite pronounced till the middle 1950's, whenceforward, a reversal appears to have occurred. But it was only after the sharp rise in 1961 that real-wage earnings, for the first time, slightly exceeded the level of 1949. After a decline in 1962, it rose again to reach the peak in 1964 and then declined in the following two years, so that level in 1966 was again lower than that of 1949.

The estimate using the 1949-based consumer-price index indicates that except for three years—1961, 1963 and 1964—real-wage earnings were always below the 1949 level; and only in 1964 were they substantially above

those in 1949. The estimate using the 1966-based consumer-price index indicates that real-wage earnings were above the 1949-level during all years of the period 1961-65, but only in 1964 were they substantially higher. Alternative interpretations of the estimated movement of wages are possible. But it is reasonable to conclude that real-wage earnings declined in the early 1950's and in spite of some reversal in the late 1950's remained below the 1949 level in this latter period, and did not show any significant rise in the 1960's.

Moreover, as suggested earlier, the consumer-price indices very probably understate the rise in prices, and the reported money wage rates for the 1960's are probably overestimates. Hence, the estimated movement of real-wage earnings, particularly in the 1960's, may be considered to have an upward, rather than a downward, bias so that some observed rise in the the 1960's may be just illusory.

What Dose the Movement of Real-Wage Earnings Indicate?

The estimated real-wage earnings do not measure the level of living of the families of even the landless agricultural labourers because *a*) these are wage earnings per labourer and not per family and *b*) these do not also include consumption of *own-produced* goods such as fuel or housing. But for reasons which we shall presently mention a proportionate change in real-wage earnings indicates the same proportionate change in the level of living of the population dependent on wage labour.

We do not have any direct evidence regarding the family composition over the period covered in this study. But the census data show that the average size of rural *households* in East Pakistan has increased from 4.8 in 1951 to 5.3 in 1961 [17]. The census finding for 1961 seems to be corroborated by the CSO's surveys which found that the average *family* size in rural East Pakistan was 5.3 in 1960, 5.4 in 1961, and 5.5 in 1963/64 [19;22]. It may be assumed that the size of families of agricultural wage labourers has increased in much the same way as the average rural family size.

But we are not quite sure that the average number of wage earners per family has increased in the same proportion. It is true that the census data [17] indicate an increase in the labour force (age 12-and-above) participation ratio in rural East Pakistan from 30.4 per cent in 1951 to 33 per cent in 1961. But we have noted earlier in connection with Table III that there is apparently a clear underenumeration of female agricultural labour force in the 1951 Census. Hence, the increase in the labour-force participation ratio, as shown by the census, seems illusory.

Our contention is also supported by the observed changes in the age distribution of the census population. While a comparison of age distribu-

tions of rural populations of 1951 and 1961 is not possible because the necessary data are not available for 1951, it is clear from the age distributions of the total census populations of East Pakistan that the proportion of working-age population decreased and that of young people increased during the period 1951-61. Population under 10 years of age rose from 29.5 per cent of the total in 1951 to 37 per cent in 1961. Population below 15 years rose from 42.1 per cent in 1951 to 46.1 per cent in 1961. Male population of age 15 years and above as a proportion of total population decreased from 30.4 per cent in 1951 to 28.1 per cent in 1951[9]. Whether working-age is considered to begin from age 10 or 12, it is the *male* population of age 15 and above which supplies the greatest bulk of the labour force, particularly wage earners, in countries in which female participation is low.

It is reasonable to maintain, therefore, that the labour-force participation ratio has not increased over the period covered by this study, either for the population as a whole or for the population dependent on wage labour in agriculture. It may actually have declined as the population age profile widened at the lower age groups. Moreover, the proportion of wage labour force that could obtain regular employment has very probably declined to some extent since 1949, because, for reasons stated earlier, the demand for labour in agriculture or in rural areas has not grown as fast as the labour force. It is generally believed that disguised and open unemployment in rural areas has increased. In view of this, we may assume that the number of dependents (infants, children or adults) per regular wage earner has probably increased over the period covered in this study. But since the ratio of infants and children to adults also increased it is not unreasonable to assume that dependents in terms of adult equivalents per wage earner remained very much the same. Hence, the per cent *changes* in real-wage earnings per labourer measure the per cent changes in real wage income per adult equivalent of the population dependent on wage labour.

Income in kind in the form of fuel and housing can hardly be a large proportion of total income, and therefore, cannot offset the effect of changes in wage earnings on total income. Moreover, it is likely that with decreasing land and known natural resources per head of rural population income in kind derived through gathering firewood, and materials for making dwelling houses and catching fish has tended to decline over time. Therefore, a fall in real-wage earnings must necessarily indicate a fall in the standard of living of such population, while a small increase in real-wage earnings may not necessarily indicate a rise in the level of living.

The same line of argument should hold good for those agricultural

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[9]Number of people aged 12-and-above is not shown in the census publications.

labourers who have some land. We have seen earlier that the small increases in yield and cropping intensity have not been adequate to offset completely the effect on income of the decline in land per head, so that output (and income) per head of agricultural population has fallen over time. It is almost certain that this has also happened to income from land obtained by agricultural labourers having some land.

We may conclude, therefore, that the movement of estimated real-wage earnings indicates that the level of living of the population, having some or no land and depending mainly on wage labour in agriculture, was lower in the 1950's than in 1949 and did not appreciably rise in the 1960's.

A Tentative Explanation of the Observed Movement of Wages

In the early 1950's, the decline in real wages was due largely to a fall in money wages. From the late 1950's, money wages began to move upwards but they never caught up with or exceeded the rise in consumer prices, except in a few years of the 1960's.

The fall in money wages in the early 1950's might considerably be due to lower agricultural prices in that period, excepting the months of the Korean boom. From the late 1950's, agricultural prices began to rise. This may partly explain the reversal of money wages observed in this period. In the 1960's, as have been noted by several observers, *e.g.*, Papanek [25], reduction of duties on agricultural exports and abandonment of procurement of foodgrains at low prices, raised domestic agricultural prices. This together with larger public investment in agriculture began to have some favourable effects on agricultural growth.

The expenditure on Rural Works Programme, which started in the fiscal year 1962/63 (July-June), introduced a new factor increasing demand for rural labour during the dry season, roughly January to June. The expenditures on Rural Works, as shown in East Pakistan Budgets [7], have been as follows:

Fiscal year	1962/63	1963/64	1964/65	1965/66	1966/67
Rupees (*crores*)	10	20	25	12	15

No comprehensive study of the employement effect of the programme is available. But Rahman [26, Pp. 79-80] has estimated for 1963/64 that at thana and union levels a total of 25.8 million labour man-days were employed, which was over two times the employment created in the previous year. If the average labourer worked for 100 days during the season, *i.e.*,

January to June, 258 thousand workers were employed in 1963/64. While this is not a high proportion of rural or agricultural labour force, it probably had some appreciable effect on wages in 1964, the peak year in our series.

But since consumer prices increased faster than money wages during most of the period, except a few years in the 1960's real wages remained below the 1949 level during the 1950's and rose above the 1949 level only in some years in the 1960's.

Wage-price adjustment is likely to be slower in agriculture than in industry. Most of the wage labourers in agriculture are casual labourers who are not in permanent employment of any farmer. Their bargaining power is practically nill because of lack of any trade-union organisation and due to the existence of large labour surplus in rural areas. Agriculture is really a residual sector for the labour force. Under such circumstances, a rise in consumer prices is unlikely to be matched quickly by a rise in money wages.

A recent study by Khan [13] has shown that real wages of industrial workers in East Pakistan have fallen between 1954 and 1962/63. But the index has never been below 88 (1954=100). The period of observation and the coverage of the consumer-price index of that study are different from those of ours. But it is worth noting that our estimates indicate that the real wage in agriculture has been much more flexible, and in some years the index was around 25 per cent below the 1949 level.

It is generally held that in a labour surplus, underdeveloped country, the real wage tends to stabilise around the subsistence level. Therefore, our estimates may be considered suspect, unless we explain the movement of real wages, particularly the large decline in some years below the 1949 level.

The explanation is based on the appropriate meaning of the subsistence level in traditional agriculture. If the subsistence level of income consumption) is defined as the minimum requirement for physiological survival, then an estimated real wage below that level must be considered fictitious. If, for example, the 1949 real wage is assumed to have been at such a subsistence level, our estimates for any other year should not be appreciably lower than that for 1949. Thus, the notion of increased poverty of wage earners is completely ruled out. This, however, is unrealistic.

It is more appropriate to think that the subsistence level means the conventional minimum standard of living, and not the minimum calories and the minimum clothing required for survival. This conventional standard of living may be depressed at times by the pressure of circumstances.

A simple example is the possible reduction in consumption level as a result of two or three successsive crop failures. Again it is possible that agriculture is squeezed in the process of industrial development, resulting in some reduction in the consumption level. Agricultural labourers and small farmers may be compelled to eke out a living with smaller quantities of rice, pulses, cloth and other consumption goods. They may reallocate consumption in favour of goods which are cheaper and are of poorer quality and this may adversely affect their wellbeing. Thus, a temporary reduction in level of consumption below the conventional minimum is possible.

Our estimates indicate some such reduction in the level of living of the very poor in rural areas after 1949 and 1950. In some years of the early 1950's, the actual level appears to have been considerably below the conventional minimum. A reversal began in the late 1950's, and real wages seem to have fluctuated around the conventional minimum standard of living in the early 1960's.

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Appendix A

A Note on the Subsample of Rajshahi Survey

As mentioned in the text, some information used in this paper has been obtained from a subsample of a survey [28] conducted by the Rajshahi University (Committee for the Economic Evaluation of the Rural Works Programme in East Pakistan) during the period August 1965 to July 1966. This was a sample survey of employment, income and expenditure of rural households in general, and not of households of agricultural labourers only. Five areas (thanas) from different parts of East Pakistan were selected on the basis of important crops. From each of these areas one union was selected. From these five unions a random sample of rural households totalling 234 was drawn and they were interviewed weekly over a period of 12 months. In this sample of 234 households, 48 households reported themselves as agricultural labourer by occupation. We made a random selection of 50 per cent (i.e., 24) of proformas related to these 48 agricultural labour households. Because of nonreporting of certain data, 3 out of these 24 proformas were rejected.

Our estimates of employment, pattern of consumption expenditure, family size, and wage-earners per family are based on these 21 households. It should be clear that characteristics of such a small subsample selected in this way cannot be claimed in a statistical sense to be representative of agricultural wage labourers in East Pakistan. But these estimates may roughly reflect the actual order of magnitudes.

TABLE A-1

EAST PAKISTAN'S POPULATION

Year	Total	Urban	Rural	Agricultural
	(.....................*in millions*.....................)			
1949/50	42.25	1.83	40.42	35.43
1950/51	43.29	1.88	41.41	36.37
1951/52	44.35	1.96	42.39	37.33
1952/53	45.44	2.04	43.40	38.32
1953/54	46.56	2.13	44.43	39.34
1954/55	47.70	2.22	45.48	40.38
1955/56	48.86	2.31	46.55	41.45
1956/57	50.06	2.41	47.65	42.55
1957/58	51.29	2.52	48.77	43.68
1958/59	52.56	2.62	49.94	44.84
1959/60	53.85	2.74	51.11	46.02
1960/61	55.25	2.87	52.38	47.22
1961/62	56.69	2.99	53.70	48.45
1962/63	58.16	3.12	55.04	49.70
1963/64	59.67	3.25	56.42	50.99
1964/65	61.22	3.39	57.83	52.04
1965/66	62.81	3.69	59.27	53.39

Sources and methods:

Total population based on Planning Commission estimates taken here from Khan and Bergan [14]; from 1964/65 onward the estimates are ours based on a 2.6-per-cent compound rate of growth per year, as assumed by the Planning Commission.

Urban-rural breakdown for 1949/50 and 1950/51 is based on proportions shown by the Census of Pakistan, 1951 and the same for 1960/61 based on the 1961 Census [17]. Between 1950/51 and 1960/61 urban population is assumed to have grown at a compound rate of 4.3 per cent per year. This growth rate is also assumed for the period after 1960/61.

Agricultural population was first estimated by using census data, *i.e.*, by multiplying agricultural labour force by the ratio of rural population to rural labour force. This showed that in the census populations of 1951 and 1961, agricultural populations were 83.85 per cent and 85.46 per cent, respectively. The proportion obtaining in 1951 is applied to the estimated total population of 1949/50 and that of 1961 to 1959/60 population. This shows that between 1949/50 and 1959/60, agricultural population grew by 29.89 per cent, *i.e.*, at an annual compound rate of 2.65 per cent which is applied to the intervening years. It is assumed that the proportion of agricultural population to total remained 85.46 per cent from 1959/60 to 1963/64, and was 85 per cent in 1964/65 and 1965/66.

TABLE A-2

EAST PAKISTAN: GROSS PROVINCIAL PRODUCT AT 1959/60 FACTOR COST AND ITS DISTRIBUTION BY ORIGIN TO AGRICULTURAL AND NON-AGRICULTURAL SECTORS AND RURAL AND URBAN AREAS

Period	Gross provincial product	Agriculture	Nonagriculture	Rural	Urban
	(1)	(2)	(3)	(4)	(5)
(............................ *in million rupees* ....)					
1949/50	12,052	8,074	3,978	10,937	1,115
1950/51	12,495	8,344	4,151	11,332	1,163
1951/52	12,849	8,394	4,455	11,607	1,242
1952/53	13,270	8,751	4,519	12,007	1,263
1953/54	13,737	9,048	4,689	12,428	1,309
1954/55	13,438	8,704	4,734	12,069	1,369
1955/56	12,856	8,043	4,813	11,476	1,380
1956/57	14,062	9,012	5,049	12,458	1,604
1957/58	13,851	8,696	5,156	12,321	1,530
1958/59	13,515	8,234	5,281	11,902	1,613
1959/60	14,568	9,042	5,526	12,875	1,693
1960/61	15,434	9,590	5,844	13,585	1,849
1961/62	16,368	10,012	6,356	14,361	2,007
1962/63	16,367	9,675	6,692	14,195	2,172
1963/64	18,171	10,599	7,572	15,718	2,453

Sources and methods:

The first three columns are computed essentially from Khan and Bergan [14] which again is based on Pakistan's GNP estimates made by the CSO. But, we allocated to East Pakistan 37 per cent of the value added in Transport and Communications, and 33 per cent of Banking and Insurance, and 30 per cent of Central Government and Defence, while Khan and Bergan allocated them in a ratio of fifty-fifty to the two wings. This is the only difference between this estimate and theirs. The percentages which we used for these sectors were once estimated by the CSO and used by a group of experts in *Transportation Survey of East Pakistan,* 1961 [3]. Another estimate by M. Anisur Rahman [27] allocates an even smaller share to East Pakistan.

A Note on Estimation of Rural-Urban Factor Income

The method of rural-urban distribution of the gross provincial product is very crude, and almost certainly it overestimates rural income. The following formula is used:

$$\text{Rural income} = \frac{\text{agricultural income} \times \text{agricultural L.F. in rural areas}}{\text{total agricultural labour force}}$$

$$+ \frac{\text{nonagricultural income} \times \text{nonagricultural L.F. in rural areas}}{\text{total nonagricultural labour force}}$$

Urban income is obtained by deducting rural income from the gross provincial product.

The proportion of total agricultural labour force working in rural areas, and the proportion of total nonagricultural labour force working in rural areas have been estimated mainly from data shown in the censuses of 1951 and 1961.

The census data for 1951 and the estimates for 1961 show that in both years 99 per cent of total agricultural labour force was in rural areas, but of total nonagricultural labour force 74 per cent was rural in 1951 and 70 per cent in 1961.

On this basis it is assumed that in all the years 99 per cent of agricultural income originated in rural areas. The proportion of nonagricultural income originating in rural areas is rather arbitrarily assumed to have declined in following way:

1949/50—1953/54	74%
1954/55—1955/56	73%
1956/57—1957/58	72%
1958/59—1959/60	71%
1960/61—1961/62	70%
1962/63—1963/64	69%

The urban-rural distribution of labour force used in this computation is discussed below:

CENSUS DISTRIBUTION OF POPULATION AND LABOUR FORCE

	1951			1961		
	Urban	Rural	Total	Urban	Rural	Total
	(...........................in millions.........................)					
Population	1.82	40.11	41.93	2.64	48.20	50.84
Labour force (age 12-and-above)	0.67	12.22	12.89	(0.92)	(15.94)	16.86
Agricultural labour force	0.12	10.60	10.72	(0.16)	(14.18)	14.34
Nonagricultural labour force	0.55	1.57	2.12	(0.76)	(1.76)	2.52
Labour force (age 10-and-above)	n.a.	n.a.	n.a.	0.94	16.50	17.44

Source: [17].

The figures in parentheses are our estimates, made on the following assumptions:

For 1961, it is found that labour force age 10-and-above is 3.4 per cent larger than labour force age 12-and-above. It is assumed that in urban areas it is only 2 per cent larger, because a higher proportion of children of age 10-12 go to school in urban areas. It is also assumed that agricultural labour force in urban areas was 33 per cent higher than that in 1951. The other figures in brackets are then easy to obtain.

TABLE A-3

AVERAGE DAILY WAGES IN RUPEES (WITHOUT FOOD) AND MONTHLY EMPLOYMENT IN DAYS

Year ↓ Month →	January	February	March	April	May	June	July
1948	1.72	1.67	1.73	1.66	1.71	1.79	1.78
1949	1.91	1.91	1.88	1.91	2.01	2.07	2.03
1950	1.74	1.72	1.67	1.61	1.66	1.59	1.58
1951	1.51	1.50	1.46	1.52	1.59	1.55	1.55
1952	1.55	1.55	1.54	1.54	1.62	1.61	1.61
1953	1.37	1.37	1.39	1.39	1.41	1.37	1.36
1954	—	—	—	—	—	—	—
1955	1.30	1.31	1.23	1.21	1.23	1.19	1.37
1956	—	—	—	—	—	—	—
1957	1.82	1.82	1.85	1.70	1.68	1.72	1.51
1958	1.66	1.66	1.91	1.80	1.87	1.84	1.83
1959	1.78	1.76	1.85	1.77	1.85	1.90	1.81
1960	1.83	1.84	1.85	1.80	1.96	1.95	1.96
1961	2.02	2.03	2.05	2.11	2.30	2.28	2.23
1962	2.29	2.21	2.19	2.21	2.45	2.35	2.26
1963	2.10	2.18	2.24	2.22	2.46	2.60	2.53
1964	2.52	2.49	2.49	2.61	2.86	2.70	2.86
1965	2.41	2.22	2.33	2.43	2.37	2.41	2.36
1966	2.94	2.99	2.29	2.35	2.33	2.26	2.26
Number of days employed each month	20	20	22	23	21	22	18

(Contd.)

TABLE A-3—(*Contd.*)

AVERAGE DAILY WAGES IN RUPEES (WITHOUT FOOD) AND MONTHLY EMPLOYMENT IN DAYS

Month → Year ↓	August	September	October	November	December	Annual average	
						Simple	Weighted by employment
1948	1.79	1.93	1.92	1.87	1.85	1.81	1.79
1949	2.01	1.97	1.86	1.78	1.71	1.92	1.92
1950	1.59	1.62	1.59	1.51	1.54	1.62	1.62
1951	1.59	1.62	1.60	1.60	1.55	1.56	1.55
1952	1.52	1.53	1.42	1.42	1.42	1.52	1.53
1953	1.35	1.37	1.40	1.37	1.39	1.38	1.38
1954	—	—	1.22	1.20	1.21	—	—
1955	1.40	1.40	1.36	1.34	1.37	1.32	1.31
1956	—	—	—	—	—	—	—
1957	1.50	1.52	1.65	1.81	1.84	1.70	1.70
1958	1.98	1.95	1.92	1.96	1.86	1.85	1.86
1959	1.90	1.96	1.77	1.86	1.93	1.85	1.85
1060	2.03	1.98	2.08	2.04	2.12	1.95	1.95
1961	2.30	2.21	2.24	2.04	2.33	2.18	2.18
1962	2.16	2.23	2.23	2.13	2.19	2.25	2.24
1963	2.55	2.38	2.62	2.46	2.57	2.41	2.41
1964	2.93	2.71	2.75	2.48	2.44	2.65	2.65
1965	2.27	2.28	2.38	2.29	2.33	2.34	2.34
1966	2.22	2.30	2.28	2.26	2.35	2.40	2.40
Number of days employed each month	23	22	23	23	22		

Sources: Daily wages from Directorate of Agriculture, East Pakistan [6]. Employment per month, from Rajshahi University Survey [28].

TABLE A-4

INCOME, CONSUMPTION, LAND HOLDING, AND FAMILY COMPOSITION OF THE
AVERAGE AGRICULTURAL LABOUR FAMILY IN
EAST PAKISTAN

(Reference Period 1965/66)

(A) AVERAGE INCOME BY SOURCES

	Total	Wages	Sale of agriculture products	Own-pro-duce consumed	Wages as per cent of total
(1)	(2)	(3)	(4)	(5)	(6)
	(.................*rupees per year*..................)				
Income per household	909	481	77	351	53
Income per capita	201	106	17	78	53
Consumption per capita	190				

Source: Rajshahi University Survey [28].

(B) LAND HOLDING, TOTAL MEMBERS AND ACTIVE MEMBERS PER FAMILY

Land	Family members	Active members		Children under age 10
		Male	Female	
(in acres)				
1.11	4.52	1.1	1.2	2.1

Source: Rajshahi University Survey [28].

Appendix B

A NOTE ON WEIGHTS AND PRICES USED IN THE CONSTRUCTION OF THE CONSUMER PRICE INDEX

The pattern of consumption of families of agricultural wage labourers (classified according to the chief occupation of the male active member(s) of a family) has been obtained from a subsample of the Survey [28] and is shown in Table B-1. Total consumption of such families includes certain goods purchased from the market, and certain own-produced goods for which values are imputed in the Survey data. As one would expect, it is found that the importance of own-produced goods in consumption varies with the amount of land held by the family. But fuel for cooking is not purchased from the market by any family of agricultural labourers, and rent is paid only by those who have some land. Even those who are completely landless also grow some vegetables and catch some fish for their own consumption, although they have mainly to rely on market purchases of these items. We have, therefore, obtained the weights from the total consumption excluding fuel for cooking and housing (rent) of an average family of agricultural labourers (Table B-1, Column (6)). In other words, it has been presumed that landless labourers usually purchase all their consumption items except fuel for cooking, and housing. Some items have been grouped togehter because item-wise information about consumption is not available in all cases.

Retail prices of the items, as far as available, have been taken mostly from the CSO. For each year a simple average of the prices of an item obtaining at several locations in East Pakistan is considered as the representative price for the province. Items of which price series are available are mentioned below :

Rice (coarse), onion, salt, dry chillies, mustard oil, *gur* (*i.e.*, raw sugar), *saree*, kerosene oil, and *bidi*.

Sources of prices are :

a) 1952 onwards all items, except *gur*, kerosene oil and *bidi*, from CSO [21].

b) 1949, 1950, 1951, all items, and from 1952 to 1961 *bidi*, *gur* and koerosene, from CSO [20]; split year shown in the source is treated as calendar year; *e.g.*, 1949/50 as 1949.

c) 1962-66 *bidi*, *gur*, and kerosene, from East Pakistan Bureau of Statistics [4].

Since such series are not available for all items certain assumptions were **used for our purpose:**

a) **To ensure that the index does not overestimate the increase in prices, no price change has been assumed for certain food items —wheat, pulses, milk, fish, beef, mutton, chicken, eggs, which constitute 13 per cent of total consumption, and also for** *pan,* **betel-nuts and other nonfood items together representing** 4.5 **per cent of consumption.**

h) **For the items grouped together in the weights, the price of** one **important item in the group has been taken as representative of the group;** *e.g., saree* **for clothing,** *hidi* **for tobacco, kerosene for lighting,** dry **chillies for chillies and spices, onions** for **fruits and vegetables, and mustard oil for edible oil.**

TABLE B-1

PATTERN OF CONSUMPTION OF THE AVERAGE HOUSEHOLD OF AGRICULTURAL LABOURERS IN EAST PAKISTAN
(1965/66)

Item	Value			Per cent distribution		
	Market purchased	Own-produced	Total consumption	Market purchased	Total consumption excluding fuel & rent	Total consumption
(1)	(2)	(3)	(4)	(5)	(6)	(7)
	(..........*in rupees*........)			(........*per cent*.........)		
Rice	248.37	211.60	459.97	48.8	60.5	53.8
Wheat	32.86	--	32.86	6.5	4.3	3.9
Pulses	13.06	0.37	13.43	2.6	1.8	1.6
Milk	4.89	2.00	6.89	1.0		0.8
Fish	22.48	10.81	33.29	4.4		3.8
Beef	4.39	2.01	6.41	0.9	6.9	0.7
Mutton and chicken	2.21	2.20	4.41	0.4		0.5
Eggs	0.36	1.26	1.63	0.1		0.2
Fruits and vegetables	22.13	20.36	42.49	4.3	5.6	5.0
Edible oil	28.07	—	28.07	5.5	3.7	3.3
Salt	8.51	—	8.51	1.7	1.1	1.0
Chillies	9.94	1.63	11.57	1.9	1.5	1.3
Spices	10.18	0.22	10.39	2.0	1.4	1.2
Gur	7.12	—	7.12	1.4	0.9	0.8
Lighting	14.17	—	14.17	2.8	1.9	1.7
Fuel (firewood)	---	92.06	92.06	—	---	10.8
Clothing	32.76	—	32.76	6.4	4.3	3.8
Tobacco	10.69	1.02	11.71	2.1	1.6	1.4
Pan, betal-nuts and other nonfood	33.35	0.55	33.90	6.5	4.5	4.0
Rent	3.49	—	3.49	0.7	—	0.4
Total	509.04	346.10	855.14	100.00	100.00	100.00
Total, excluding fuel and rent	505.55	254.04	759.59			

Note: The relative weights shown in Column (6) are used for computing the consumer-price index.

Source: Rajshahi Univesity Survey [28].

Appendix C

A NOTE ON CHANGES IN INCOME OF THE RURAL POOR INDICATED BY CSO SURVEYS (1960—1963/64)

From the CSO's National Sample Survey [19] and Quarterly Survey [22], some information about the average income and consumption of rural population of East Pakistan, and the proportion of households and population which can be considered very poor is available for the years 1960, 1961, and 1963/64, and is shown in Table C-1.

It is found that the proportion of households and population with a monthly household income of 100 rupees (at current prices) declined considerably from 1960 to 1961 but did not change appreciably between 1961 and 1963/64. The median income of all rural households increased during the entire period, while the mean income increased in 1961 but declined a little in 1963/64. Per capita consumption rose in 1961 and declined in 1963/64 below the level of 1960. This leaves a significant excess of income over consumption in 1963/64, which cannot be easily explained.

Since consumer prices rose somewhat in 1963/64 from the levels of 1960 and 1961, it is very likely that the mean income per capita in real terms was appreciably lower in 1963/64 than that in 1961 although it was but still higher than that in 1960. In view of this rise in prices, it is clear that mean consumption in 1963/64 in real terms was lower than that in 1960 or 1961. It is reasonable to think that in these surveys reporting of consumption is usually more reliable than reporting of income, particularly since certain conceptual errors were made in regard to the latter which, however, will not be discussed here.

TABLE C-1

CHANGES IN INCOME AND CONSUMPTION IN RURAL EAST PAKISTAN, 1960, 1961, 1963/64 (AS INDICATED BY CSO DATA)

A. PERSONAL INCOME DISTRIBUTION

Monthly income per household	Per cent of households			Per cent of population		
	1960	1961	1963/64	1960	1961	1963/64
(rupees)						
below 50	12.8	10.4	7.3	6.5	5.0	3.3
50—99	37.1	30.5	30.8	29.2	22.3	23.8
below 100	49.9	40.9	38.1	35.7	27.3	27.1
100 and above	50.1	59.1	61.9	64.3	72.7	72.9

B. AVERAGE INCOME

Mean income	1960	1961	1963/64
	(.........rupees...........)		
Per household	131.1	153.4	148.3
Per capita	24.9	28.4	27.1
Median income[a]			
Per household	100.2	117.0	122.0
Average household size	5.3	5.4	5.5

[a]The median income is more representative because the distribution of income is very skewed. The figures are approximate estimates calculated by assuming linearity in the relevant income range.

C. MONTHLY PER CAPITA CONSUMPTION (ALL RURAL POPULATION)

Important Food Items

Year	Total	Rice	Wheat	Mutton+ beef	Fish	Milk+ butter
	(rupees)	(.................in seers.................)				
1960	23.0	15.0	0.5	0.15	0.6	1.3
1961	28.3	16.3	0.1	0.10	1.2	1.7
1963/64	21.7	14.0	0.9	0.18	1.0	0.9

Sources: CSO [19 ; 22].

A Comparison of the Interregional Purchasing Power of Industrial Wages in Pakistan

Abdul   Ghafur

A Comparison of the Interregional Purchasing Power of Industrial Wages in Pakistan

Abdul Ghafur

INTRODUCTION

Data on regional income and its various components are frequently used in Pakistan in economic planning and to formulate and evaluate other economic policies. Characteristically, these regional income magnitudes are estimated on the basis of the prices prevailing in different regions. Generally speaking, any comparative analysis of the regional real incomes on the basis of such estimations is inadequate and, in certain cases, misleading, if the intraregional price structure is substantially different in various regions. Although work has been done in measuring different components of regional income in Pakistan, no significant effort has so far been made to measure the purchasing power of income or its components in various regions. The focus of attention in this study is the comparison of the purchasing power of industrial wages in various regions in Pakistan. These index numbers may be used to formulate a national wage policy or as a guide to better allocate investment in different regions in the light of national economic objectives. Strictly speaking, these index numbers of purchasing power are not applicable to components of regional income other than industrial wages but in a broad sense they probably indicate the direction of divergence.

A number of studies have been made to estimate the purchasing power of currencies — probably the most comprehensive among these studies is the one by Gilbert and Kravis [1]. They compared the purchasing

power of dollar, pound, francs, mark and lira by using formulae which we will discuss in Section II. The use of the same currency in all of Pakistan does not alter the basic nature of the problem of interwing differences in the purchasing power of money in general or industrial wages in particular. The reasons why empirical works on comparisons of interregional costs of living are less frequent than international comparisons are that in most countries regional patterns of consumption are not markedly different and, what is more, the internal transportation costs are not high enough to make any significant interregional differences in the prices of goods. Pakistan is a special case in these respects. It is not a geographically contiguous territory —the two wings of the country are separated by a physical distance of twelve hundred miles. The geographical features and some of the characteristics of the population of West Pakistan are typical of the Middle East. East Pakistan, on the other hand, is closer to South East Asia in these respects. The patterns of consumption are much different between the people of the two wings — the basic staples of the West and the East Pakistan are wheat and rice, respectively. For several reasons, most of the interwing trade is seaborne, hence the effective interwing distance becomes about three thousand miles. Apart from the physical limitation of capacity of the freighters, the costs of interwing transportation, lack of adequate storage facilities, internal transportation and distribution costs contribute significantly to differences in the prices of goods traded between the two wings. Interwing geographical mobility of labour is also limited to a great extent and it has led to, among other things, differences in the costs of some of the services.

Three major industrial centres in Pakistan, *e.g.*, Karachi, Lahore and Narayanganj, have been included in this study for a number of reasons. While the price structure in Narayanganj and the consumption pattern of Narayanganj workers can be considered representative of East Pakistan[1], neither Karachi nor Lahore alone can represent West Pakistan in this sense. A pairwise comparison between Karachi and Narayanganj and between Lahore and Narayanganj is necessary to estimate the magnitude of the interwing differences in the purchasing power of wages. Comparison between Karachi and Lahore may be helpful in examining the problems of geographical mobility of labour within West Pakistan.

In this study we have made an attempt to estimate the relative purchasing power of industrial workers at Karachi, Lahore and Narayanganj for the years 1961 and 1965/66. Our computations show that the cost of living in Narayanganj is higher than that at Karachi or Lahore while there is no significant difference in the cost of living between Karachi and Lahore.

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[1]The Central Statistical Office (CSO) computes cost-of-living index numbers for industrial workers at Lahore, Karachi and Sialkot in West Pakistan, but for workers at Narayanganj only in East Pakistan.

II. METHODOLOGY AND DATA SOURCES

A. The Basic Framework of the Analysis

The bundle of consumption goods used by the Central Statistical Office in Pakistan to compute the cost-of-living indices indicates differing patterns of consumption by typical industrial workers in various regions in Pakistan. Such differences may be due to taste, relative prices, and a number of other factors. Let us assume that the typical workers in regions 1 and 2 consume commodity bundles Q_1 and Q_2, respectively. It can be unambiguously shown that the costs of living are lower in region 1 if $\Sigma P_1 Q_1 < \Sigma P_2 Q_1$ and $\Sigma P_1 Q_2 < \Sigma P_2 Q_2$. When $\Sigma P_1 Q_1 > \Sigma P_2 Q_1$ but $\Sigma P_1 Q_2 < \Sigma P_2 Q_2$ or $\Sigma P_1 Q_1 < P_2 Q_1$ but $\Sigma P_1 Q_2 > P_2 Q_2$ no firm conclusion about the relative cost-of-living can be drawn without either interpersonal comparison of utility and/or *a priori* knowledge about indifference maps [3].

It is very important to note that we are not making any interpersonal comparison of utility. It is likely that the taste of the consumers in two regions may be quite different. In comparing costs of living, only goods and services enter into our estimation, and we do not include many qualitative aspects of living, *e.g.*, climatic conditions, cultural environment. Our index number analysis only shows that given Q_2 it is possible for a consumer to buy more of both the goods in terms of the prices in region 1 but, given Q_1 it is not possible to do the same in terms of the prices in region 2.

B. Measurement of Costs of Living

The Family Expenditure Survey conducted by the Central Statistical Office (CSO) in Pakistan in 1955/56 supplies the basic information on the pattern of consumption by typical industrial workers at different important industrial centres. On the basis of this survey, the CSO has computed a new series of cost-of-living index numbers for industrial workers at various industrial centres with 1961 as the price-comparison base. From the CSO, the detailed record of the percentage distribution of expenditure, using 1955/56 quantity weights, on different items of consumption for the year 1961 can be obtained. These expenditure figures are used by the CSO to compute the cost-of-living indices for industrial workers (base=1961). The CSO also has a complete monthly (unpublished) record of prices for all these items since 1961. From these sets of information we computed the *composition* of the implicit bundle of commodities consumed by a typical worker at various centres. For example, in 1961, a typical worker at any particular centre spent a proportion (say) $P_w Q_w / \Sigma PQ$ of his expenditure on wheat. Dividing $P_w Q_w / \Sigma PQ$ by the *base year* (1961) *price* of wheat, we get $Q_w / \Sigma PQ$. In this way, we arrive at a bundle of commodities

$[Q_{i1}, Q_{i2}, \ldots Q_{in}]$ consumed by a typical worker at that particular centre per unit of expenditure. The ratios $\Sigma P_1 Q_1 / \Sigma P_2 Q_1$ or $\Sigma P_1 Q_2 / \Sigma P_2 Q_2$ are not affected by the magnitudes of the commodity bundles because the relative composition of the commodities remains invariant. In estimating relative costs of living for both 1961 and 1965/66, we have used the same Q's, *e.g.*, the Q's we obtained by dividing 1961 expenditure distributions by 1961 prices. In this study, the geometric averages of these two above ratios are used to measure the relative costs of living between regions 1 and 2. However, it is quite clear from the above analysis that when one of these ratios is greater than 1 whereas the other is less than 1, the meaning of the comparative costs of living is somewhat ambiguous.

C. Qualitative Difference and the Problems of Estimation

A glance at the percentage distribution of expenditure by the typical industrial workers at various centres (Table I) shows the difference in the pattern of consumption. An itemwise comparison of the articles of consumption and distribution of weights among items confirms the above observation [2].

TABLE I

GROUP WEIGHTS AND THE NUMBER OF ITEMS IN CONSUMER PRICE INDEX NUMBERS FOR INDUSTRIAL WORKERS AT DIFFERENT CENTRES

Item	Cities		
	Karachi	Lahore	Narayanganj
1. Food	56.47 (46)	60.11 (44)	69.77 (45)
2. Apparel, textiles, and footwear	10.92 (30)	7.22 (24)	10.38 (23)
3. Housing and household operation	11.27 (6)	15.04 (7)	9.35 (11)
4. Miscellaneous	21.34 (30)	17.63 (34)	10.50 (21)
Total	100.00(112)	100.00(109)	100.00(108)

Source: [2]

A further investigation into the lists of commodities shows that for any pairwise comparison a number of commodities are *not* common to both the bundles. The commodities which are common to both the bundles will be called *binary* commodities and the rest will be called *unique* commodities. The monthly time-series price data for the binary commodities are readily available from the Central Statistical Office. The simple average of these monthly prices for the years 1961 and 1965/66 is used in our estimation to represent the price level for those years. On the other hand, price data for the unique commodities are sparse which meant that unique commodities were excluded in the pairwise comparison. In evaluating the interre-

gional costs of living, the quantity units have to be adjusted for quality differences since a higher quality product constitutes more consumption than one of lower quality. It is convenient, in considering the problem, to divide all binary goods and services into two categories: *a*) identical products, and *b*) common products. Identical products are defined as those which have the same specification and characteristics, although there may be some minor negligible differences. Common products, on the other hand, bear the same name and serve the same purpose but are basically products of different qualities. It is quite obvious that in cases of common products, we have an obligation to specify the correct relationship among these products. In our present study, there are at least three major areas where quality differences may be significant to introduce bias in our estimation.

a) The cost of medical services (physician per call) is quoted as slightly higher in CSO figures for Karachi than in Lahore or Narayanganj. On the other hand, due to a higher concentration of trained doctors and hospitals, it is likely that medical services in Karachi are of a higher quality then those of other areas. Karachi workers, moreover, have more facilities for free medical services than workers in other regions. However, we have not made any adjustment for quality due to lack of any measurable criteria and it might introduce some upward bias in the costs of living in Karachi.

b) The tuition fees for school-going children are much more (about 50 per cent) in Narayanganj than in Karachi or Lahore. It is very difficult to make any judgement about the relative quality of education in the two wings of Pakistan. In the absence of any definite information on this aspect no quality adjustment has been made in our computation and depending on the quality differential it is possible that we might have introduced some unintentional bias in one direction or the other.

c) Firewoods used as fuels are much more expensive in West Pakistan than in East Pakistan, if no quality adjustment is made. Here again, we do not have adequate information to make any adjustments for quality by reducing the physical quantities in terms of thermal units hence we had to assume that one maund of firewood of different qualities used in CSO costs of living index numbers is equivalent.

The weights of the binary commodities (excluding housing and transportation) are shown in the Appendix. It can be seen from the Appendix that the weights of the binary commodities in all pairwise comparisons constitute a higher percentage of the total weights in all the commodity bundles. However, we felt that it was possible to increase the weights of the common items without introducing unreliable data. In an attempt to do so, we have selected two items with comparatively large weights. *e.g.*, housing and bus transportation and probed the relative costs of these two

items by *a*) interviewing persons from these areas residing in Karachi, and b) analysing the published records.

a) For industrial workers' housing, a limited number of objective and measurable criteria could be specified to identify housing units of comparative quality in different regions. In this study, the criteria were floor space and proximity to the city centres. Since lack of other amenities is very much in common in all the regions, no adjustment was necessary in that respect. Our estimation shows that the costs of housing indices (Karachi = 100) for Lahore and Narayanganj are 80 and 140, respectively. It seems that the high costs of housing in Narayanganj are mainly due to the slower pace of construction of dwelling units in that region. Moreover, due to heavy downpour in East Pakistan, the houses in Narayanganj, which are otherwise similar to that of Karachi, had to be more or less rainproof.

b) In case of bus transportation the choice of the unit of measurement substantially affects transportation costs indices because long distance travel is relatively cheaper in Karachi than in Lahore and Narayanganj. An examination of the distribution of expenditure shows that an average worker in Karachi or Lahore spends much more on transportation than his counterpart at Narayanganj. The choice of bus fare per mile instead of rates (say) per 10 miles would, therefore, overstate the cost of transportation for the Karachi workers and to a lesser degree for the Lahore workers. We think it a reasonable assumption that industrial workers in Pakistan generally prefer to walk short distances rather han travel by bus. We assumed, therefore, that the average journey was 4 miles, and that the unit of measurement chosen was rates per 4 miles of bus travel. The cost indices (Karachi = 100) for both Lahore and Narayanganj were estimated to be 120.

With the inclusion of housing and transportation, the final weights of the binary commodities were as follows:

| Karachi | 81.30 | Karachi | 89.77 | Narayanganj | 90.74 |
| Lahore | 85.52 | Narayanganj | 89.23 | Lahore | 98.14 |

In section III we have discussed, in details, the possibility of bias in estimation due to omission of unique commodities.

D. Reallocation of Weights and Computation of General Index Numbers from Group Indices

Strictly speaking, the construction of index numbers is an *approximation*, since the whole set of prices and quantities in any field is generally impossible to obtain. Prices and quantities that enter into the index are, in practice, samples representing the whole set. When a group of commo-

dities represents others in this sampling sense, their weight will represent the entire group. In conformity with this general principle, we have reallocated the weights of each of the items in such a way that it does not affect the group weights in the original bundles, *i.e.*, in estimating the relative costs of living we have computed the relative costs of each of the groups of commodities, *e.g.*, food separately and then combined these indices according to the weights of these groups[2].

III. LIMITATIONS OF THE STUDY

As we have mentioned earlier, our index number should be interpreted as an *approximation* to the "true" interregional cost-of-living indices for industrial workers. Although the weights of the binary commodities are more than 85 per cent in all cases, it is possible that the items we had to leave out for lack of price data could affect the estimation significantly. The accuracy of our comparison depends upon the assumption that the same purchasing power equivalent would apply to unique commodities as well. It may be argued that although the unique commodity may be relatively cheaper in the commodity bundles of the regions where they appear, the price ratio between binary and unique commodities may be significantly different in various regions. There is, however, no good reason why this should be so and, moreover, because the weights of the unique commodities are small the differential in the ratios have to be very large in order to affect our estimation significantly.

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[2] For example, the indices $\Sigma P_K Q_L / \Sigma P_L Q_L$ for 1961 between Karachi and Lahore for various commodity groups and the weights of those groups in the consumption bundles for Lahore workers are sa follows:

Item	$\dfrac{\Sigma P_K Q_L}{\Sigma P_L Q_L} \times 100$	Weights in the consumption bundle	$\dfrac{(1) \times (2)}{100}$
	(1)	(2)	(3)
1. Food	89.43	60.11	53.756
2. Apparel, *etc.*	102.83	7.22	7.424
3. Housing, *etc.*	107.71	15.04	16.199
4. Miscellaneous	104.43	17.63	18.411
			95.790

By combining these index numbers with their respective weights in the consumption bundle, we arrive at the general index of 95.79.

Within each of these groups, the weights of each of the commodities were reallocated in such a way that the total weights of these binary commodities become equal to one hundred. Thus, the weight of a particular commodity in the food group was inflated by 100/90, if the weights of the binary commodities in the food group were 90 per cent.

A second type of limitation of our study arises out of the basic data on the percentage distribution of expenditure on various commodities. In all three centres we have compared, the weights of firewood are much greater than that of house rent. This seems to conflict with our common-sense presumption about the percentage distribution of expenditure on these two items. The percentage expenditure on housing also seems to be under-reported. In Narayanganj, the percentage expenditure on housing by a typical worker is about 1.73. Considering the heavy rainfall and high cost of housing in East Pakistan, such a small percentage seems to be very un-likely.

In estimating the comparative costs of living of industrial workers in various regions in Pakistan for the years 1961 and 1965/66, the commodity-weight base was 1955/56. It is likely that the pattern of consumption of the workers has changed over time. However, the bias in estimation introduced by such changes in consumption pattern is characteristic of and cannot be overcome in the Laspeyre type indices. Similarly, our implicit assumption of an unchanged commoditty bundles for the relevant period and its use in computing the relative costs of living for the years 1961 and 1965/66 might have led us to some bias in estimation.

IV. SUMMARY OF THE FINDINGS AND CONCLUSION

Our estimations of the interregional comparative cost-of-living index numbers for industrial workers are shown in Tables II to IV. We have found that the purchasing power of industrial wages is about 10 to 15 per cent higher in West Pakistan than in East Pakistan for both 1961 and

TABLE II

THE COMPARATIVE COSTS OF LIVING INDEX NUMBERS FOR INDUSTRIAL
WORKERS IN KARACHI AND NARAYANGANJ FOR
YEARS 1961 AND 1965/66

Item	$\dfrac{\Sigma P_N Q_N}{\Sigma P_K Q_N} \times 100$		$\dfrac{\Sigma P_N Q_K}{\Sigma P_K Q_K} \times 100$
1. Food	1961 :	114.20	115.76
	1965/66 :	112.59	106.60
2. Apparel, *etc.*	1961 :	115.08	113.51
	1965/66 :	106.23	117.33
3. Housing, *etc.*	1961 :	110.06	120.02
	1965/66 :	108.08	119.44
4. Miscellaneous	1961 :	97.85	113.52
	1965/66 :	91.23	114.52
General index	1961 :	111.93	115.52
	1965/66 :	108.82	110.91
Geometric mean	1961 :	113.71	
	1965/66 :	109.86	

TABLE III

THE COMPARATIVE COSTS OF LIVING INDEX NUMBERS FOR INDUSTRIAL WORKERS IN LAHORE AND NARAYANGANJ FOR YEARS 1961 AND 1965/66

Item	$\dfrac{\Sigma P_N \ Q_N}{\Sigma P_L \ Q_N} \times 100$		$\dfrac{\Sigma P_N \ Q_L}{\Sigma P_L \ Q_L} \times 100$
1. Food	1961 :	103.99	114.53
	1965/66 :	112.71	119.17
2. Apparel, *etc.*	1961 :	106.85	107.75
	1965/66 :	121.32	119.03
3. Housing, *etc.*	1961 :	108.69	134.27
	1965/66 :	120.01	139.04
4. Miscellaneous	1961 :	107.76	121.53
	1965/66 :	97.04	107.38
General index	1961 :	105.11	118.24
	1965/66 :	112.28	120.07
Geometric mean	1961 :	111.48	
	1965/66 :	116.04	

1965/66. A comparison between 1961 and 1965/66 shows that whereas the purchasing-power differential has somewhat decreased between Karachi and Narayanganj, it has increased between Lahore and Narayanganj. In *1961*, the purchasing power of industrial wages was somewhat less in Lahore compared to Karachi (mainly due to food items) but in 1965/66 the gap has virtually vanished. We have not found any evidence in favour of the contention that it is the higher price of food in East Pakistan which is mainly responsible for the interwing disparity in the costs of living.

In a direct comparison between Karachi and Narayanganj (Table II), the index numbers with both Karachi and Narayanganj commodity weights, for each of the commodity groups excepting miscellaneous, show that the costs of living in Narayanganj are higher those of Karachi. The reasons why miscellaneous group shows reversal when commodity base is changed are: *a*) that the group includes such services as haircut and shaving, medical services and laundry charges which are more expensive in Karachi but have comparatively more weights in the Narayanganj consumption bundle; and *b*) that certain items in the miscellaneous groups like bus fare and tuition fees for schools are cheaper in Karachi, and have comparatively larger weights in the Karachi consumption bundles. A special feature of the miscellaneous group in that, excluding personal services, there is not much interwing difference in the prices of goods which appear in this group. Over the period 1961 and 1965/66, cost-of-living disparity has narrowed down by 4 per cent mainly due to the *relative* decline in food prices in Karachi. A comparison between Lahore and Narayanganj (Table III) points to some interesting changes in the index numbers over time. Between 1961 and

TABLE IV

THE COMPARATIVE COSTS OF LIVING INDEX NUMBERS FOR INDUSTRIAL WORKERS IN KARACHI AND LAHORE FOR YEARS
1961 AND 1965/66

Item	$\dfrac{\sum P_K Q_K}{\sum P_L Q_K} \times 100$	$\dfrac{\sum P_K Q_L}{\sum P_L Q_L} \times 100$
1. Food	1961 : 92.69	89.43
	1965/66 : 101.43	97.67
2. Apparel, etc.	1961 : 105.26	102.83
	1965/66 : 99.95	105.43
3. Housing, etc.	1961 : 98.25	107.71
	1965/66 : 97.14	107.48
4. Miscellaneous	1961 : 108.02	104.43
	1965/66 : 108.27	107.48
General index	1961 : 97.57	95.79
	1965/66 : 102.12	100.90
Geometric mean	1961 : 96.67	
	1965/66 : 101.51	

1965/66 the comparative costs of living in Narayanganj have increased for all commodity groups except miscellaneous. An item-by-item investigation indicates that the relatively faster rate of increase in the costs of services and medicines in Narayanganj led to such results. An examination of the comparative costs of living between Karachi and Lahore (Table IV) shows that the price level of the items in the food group is much less in Karachi than in Lahore and there have not been any changes over the period 1961 and 1965/66. It appears that the relatively higher prices of wheat, rice and certain types of vegetables in Lahore push up the comparative price level of the food group. Housing group indicates a reversal when commodity base is changed for both 1961 and 1965/66 mainly because housing, which has a smaller weight in the Lahore commodity bundle, is more expensive in Karachi and it is the other way round in case of firewood. The price level of the goods in the miscellaneous group is higher in Karachi mainly due to the higher costs of services including doctors' fees and tution fees for schools.

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Appendix

THE PERCENTAGE OF WEIGHTS OF BINARY COMMODITIES* IN EACH COMMODITY GROUP IN PAIRWISE COMPARISON

Commodity	CSO weights (1)	Binary commodity weights (2)	$\frac{(1)\times(2)}{100}$	CSO weights (1)	Binary commodity weights (2)	$\frac{(1)\times(2)}{100}$
	Karachi			Narayanganj		
1. Food	56.47	92.43	52.17	69.77	89.56	62.55
2. Apparel, *etc.*	10.92	93.82	10.24	10.38	99.40	10.32
3. Housing, *etc.*	11.27	95.58	10.77	9.35	88.08	8.24
4. Miscellaneous	21.34	36.68	7.83	10.50	52.43	5.51
			81.01			86.62
	Lahore			Narayanganj		
1. Food	60.11	92.66	55.70	69.77	91.00	63.49
2. Apparel, *etc.*	7.22	92.04	6.65	90.38	71.40	7.41
3. Housing, *etc.*	15.04	97.91	14.73	9.35	87.45	8.18
4. Miscellaneous	17.63	84.17	14.84	10.50	86.17	9.05
			92.92			88.13
	Karachi			Lahore		
1. Food	56.47	90.91	51.34	60.11	95.79	57.58
2. Apparel, *etc.*	10.92	70.78	7.08	7.22	74.21	5.36
3. Housing, *etc.*	11.27	58.35	6.35	15.04	61.45	9.24
4. Miscellaneous	21.34	36.41	7.77	17.63	40.36	7.12
			72.54			79.30

*Excluding housing and transportation.