Manual on Consumer Price Index 2010

Government of India
Ministry of Statistics and Programme Implementation
Central Statistics Office
Sansad Marg, New Delhi
www.mospi.gov.in

PREFACE

1. One of the mandates of the Central Statistical Organization (CSO) is that of laying down norms and standards and evolving concepts, definitions, methodology and classification in relation to Official Statistics. Even though the CSO has been performing this mandate in many fields of statistics, the absence of proper documentation in this regard had, some time back, led to a decision to prepare, to start with, statistical manuals in respect of 24 selected/identified subjects dealing inter alia with concepts, definitions, classification procedures, compilation of data, estimation procedures, dissemination and other relevant explanatory notes, including methodological framework in respect of the statistical indicators to make these manuals comprehensive and useful reference books comparable to the manuals produced by the UNSD from time to time.

2. A Steering Committee for preparation of Manuals on various Statistical Indicators/Statistics has been set up under the chairmanship of the Director General, formerly Central Statistical Organisation and presently known as the Central Statistics Office (CSO) for directing, guiding, monitoring and reviewing the work of the preparation of Manuals. The revised draft of this Manual viz. that on ***Consumer Price Index*** was deliberated upon in detail initially on December 20, 2010 and thereafter once again on December 23, 2010 and accorded the requisite approval by the aforesaid Steering Committee at its 12th meeting held on December 23, 2010.

3. The basic purpose of this manual, like those of all other in the series, is to provide the users of data/information on ***Consumer Price Index*** with a ready-to-use reference guide on methodological aspects of **the** subject (metadata) that can inter-alia facilitate international comparison. Another purpose of this manual is to provide the statistical offices, both at the national and state levels, with guidelines regarding the subject covered by this manual.

4. The manual is primarily meant for the easy understanding and operational use by the relevant staff/Statistical functionaries working with the various Ministries/Departments/Organisations at the National, State and Sub-State Levels. At the same time, the manual is also meant to serve as a comprehensive reference material on the subject of "***Consumer Price Index*** " in the form of metadata, for the understanding and use of researchers, academicians and students of academic Institutions, besides Industry and Trade Associations/Chambers etc.

5. The details included in this manual are expected to bring about inter-alia harmonization in concepts, definitions and methodology of compilation of Data/Information on ***Consumer Price Index***. The adoption of the methodologies suggested in this manual, it is expected, can go a long way in facilitating data aggregation and data comparison, both at intra-regional and inter-regional levels, besides international comparisons.

6. The original draft of this manual was earlier prepared by Shri S.P. Gera, a former Joint Director of the then Central Statistical Organization, in the capacity of a consultant, under the overall directions and guidance of the Steering Committee for Preparation of Manuals on Statistical Indicators/Statistics functioning under Chairmanship of the Director General, CSO. I take this opportunity to place on record the invaluable support extended to this endeavour recently by Shri Vishnu Kumar, formerly Director General and Chief Executive Officer, National Sample Survey Organization, in terms of suitably revising and updating the hitherto existing version of the draft manual on the subject. I would like to heartily thank and record my deep sense of appreciation for the invaluable and timely technical support extended to this endavour by the Training Division of CSO under the able stewardship of Shri A.K.Mehra, Additional Director General and by Shri Shyam S. Negi, Director, Labour Bureau, Shimla. I take this opportunity to also place on record my deep and heartfelt appreciation to the team of Officers of the Social Statistics Division of the CSO commendably led by Ms. S.Jeyalakshmi, Additional Director General and ably supported by Shri T.V. Raman and Shri Inderjeet Singh, Deputy Directors General, Dr. Niyati Joshi and Shri M.P.Diwakar, Assistant Directors besides Shri M.C. Sharma, Personal Assistant and Ms. Jaideep Kapoor, Technical Assistant.

7. I hope that this manual will serve as a useful reference document on the subject. Any comments/suggestions towards improving the scope, contents, lay out etc. of this manual from the readers/users of this manual would be welcome and deeply appreciated.

(S.K. Das)

New Delhi **Director General**

Dated: 24.12.2010 **Central Statistics Office**

TABLE OF CONTENTS

MANUAL
ON
CONSUMER PRICE INDEX

CHAPTER I

INTRODUCTION

Need for Statistical Standards

1.1 One of the fundamental tasks which lie at the core of the activities of any modern Government is to maintain a non-distortionary policy environment including macro-economic stability. For administrators, planners and policy makers in the Government, it is important to understand how the economy works at the macro level and what the status of the national economy at any given time is. In modern-day situation, economic planning and policy formulation are generally designed to influence national macro-economic aggregates. Official measures of economic aggregates form the foundation for sound management of Governmental functions and decision-making relating to the national economy, with information being the key factor deciding the quality of decisions. Performance of the overall economy is also of utmost concern to everyone, since it influences income, prices, job prospects, etc. and thus, everyday life of citizens.

1.2 Assessment of the national economy involves, in practice, study of economic indicators that measure aggregate performance. Some such indicators are national income, general price level, industrial production, employment and unemployment, rate of economic growth and balance of payments. Of related importance is the disaggregation of national income into such factors as consumption expenditure by households' private investment by way of purchase of new capital goods, Government consumption and investment, and net exports. In all the above-mentioned analytical endeavors, prices of various goods and services play a prominent role. Satisfactory measurement of prices is a difficult task and it is not surprising that price statistics, abundant as they are, have to be approached with utmost caution.

1.3 Price for a commodity is essentially its power to command money in exchange for itself. The fundamental principle of price theory is that all prices are related to one another. The prices of goods that come across in the market, are of different types. Important of them are wholesale prices, retail prices and other prices such as statutory prices, spot prices of bullion and security prices. Variants of the above categories of prices are producer prices, factory gate prices, farm harvest prices, procurement prices, retail prices, etc. When we look at the prices of typical items in the market, we refer to the general price level. Often, we are also interested in the prices of specific constituents such as wage rate (price of labour services), interest rate (cost of borrowing and lending) and exchange rate (price of local currency in terms of foreign currencies). The changes in the prices of goods and services affect different segments of the population differently. As such, it is necessary to collect different sets of price data to understand inter-temporal price movements in respect of different segments of the population.

1.4 The Consumer Price Index is perhaps the most used indicator among the numerous statistical indicators that are available to the common man but whose meaning and uses are generally not understood correctly. The layman looks upon it more as a determinant of his current living cost rather than as a measure of a current situation in relation to past. Thus, the cost of living index has become widely popular term, even though incorrect in the context in which it is actually used, while consumer price index which is technically a more precise term, appears to continue to be an unappealing one. Nevertheless, the correct appreciation of consumer price indices has made considerable progress over the last few decades in most countries including India, which have adopted the term 'Consumer Price Index' for measurement of price changes over time experienced by a particular segment of the population in place of the term 'Cost of Living Index' used earlier.

1.5 For millions of employees, workers, labourers, etc. whose salaries/wages are linked to Consumer Price Index series, the index is almost a household word. The extent, to which their real salaries/wages are protected from erosion on account of price rises, depends on the quality and reliability of the consumer price index series. As such, it becomes necessary to examine critically the Consumer Price Index Numbers that are currently being published and used, with a view to

assuring the users about the reliability and also standardizing the concepts and methods of compilation.

Developments Made

1.6 The construction and maintenance of Consumer Price Index Numbers (until recently called Cost of Living Index Numbers) in this country dates back to the period immediately following the First World War. The sharp rise in prices in the wake of World War I, focused the attention of several Provincial Governments on the problem of rising cost of living and led to the conduct of socio-economic surveys among working classes as a preliminary to the measurement of cost of living. Family Budget Enquiries were conducted in certain industrial centres in Bihar (though not in quite a scientific manner) during the quinquennium 1909-1914 and also during 1923. Such enquiries were also conducted in Bombay city in 1921, in Sholapur in 1925 and in Ahmedabad in 1926. However while reviewing the position in 1931 the Royal Commission on Labour in India pointed out the great paucity of statistical material in this country for judging the standard of living of the workers and observed as follows:

"The construction of reliable cost of living indices, which should be one result of the enquiries we advocate, would be of the greatest assistance to the Employers and Government in the provinces concerned".

This recommendation gave an impetus to the conduct of family budget enquiries and for the construction of series of cost of living index numbers on more scientific lines. Thus, in the thirties family budget enquiries were conducted in a number of the then provinces such as Bombay, Madras, United Provinces, etc.

1.7 The Second World War also brought in its wake a sharp rise in consumer prices and the question of compensating employees for this rise in prices through dearness allowances again came to the forefront. The Rau Court of Enquiry in 1940 constituted under the Trade Disputes Act 1929, to investigate the question of dearness allowance for Railway Employees in its report published in 1941, made the following observation on the question of compilation and maintenance of Cost of Living Index Numbers in the Country:

> "None of the cost of living index figures at present available are entirely satisfactory. The first requisite for any satisfactory revision of the allowances that we have recommended, is the preparation of up-to-date cost of living index figures for 3 distinct classes of areas- city, urban and rural. We would accordingly recommend that the question of preparing and maintaining such figures for the purpose of Central Government be considered by the Government of India".

This recommendation was land-mark in the history of Cost of Living Index Numbers in the country. Consequently, the Government of India took upon itself the responsibility for compilation and maintenance of Cost of Living Index Numbers for important centres in the country and initiated the Cost of Living Index Numbers scheme in 1941. During the years 1943–46, the Cost of Living Directorate conducted family budget enquiries in 28 important industrial centres out of which 22 centres are now falling in the Indian Union. During the period of the Second World War several Provincial Governments and Princely States conducted family budget enquiries. On the basis of the results of these enquiries, several new series of working class Cost of Living Index Numbers were started. With a number of series thus, becoming available (though they were not compiled on uniform lines), the Labour Bureau started compiling and publishing an interim series of all-India working class Cost of Living Index Numbers based on the indices for some of the individual centres. The original base of the series was 1944 but later, the base was shifted to 1949 with the addition of a few more component series.

1.8 The Sixth International Conference of Labour Statisticians recommended in 1947 the revision of weighting diagrams of Consumer Price Index series 'at intervals not more than 10 years' and adopted resolutions setting forth uniform basic concepts and procedures for the construction of Cost-of-Living Index Numbers and indicated need for further research in the field. It was at this Conference that for the first time the distinction between the cost-of-living index and the consumer price index was sought to be emphasised in the following words:

"In order to promote understanding of the nature and uses of indices of retail prices charged to a particular group, the term 'Cost-of-Living Index' should be replaced, in appropriate circumstances, by the term 'Price-of-Living Index', 'Cost-of-Living Price Index' or 'Consumer Price Index'".

1.9 During the post-war period the compilation of working class Cost of Living Index Numbers received further impetus by coming into force of the Minimum Wages Act, 1948 which made it obligatory for the State Governments to maintain Cost of Living Indices for employees in certain unorganized industries coming under the purview of the Act. For this purpose several State Governments as well as the Labour Bureau of the Government of India conducted family budget enquiries in various centres and for some of these centres working class Consumer Price Index Numbers were also compiled.

1.10 An interim series of Consumer Price Index Numbers for Agricultural Labourers on base 1950-51, was also constructed by the Labour Bureau, Government of India on the basis of the results of the First Agricultural Labour Enquiry conducted by the National Sample Survey Organisation in 1950-51. This series was later replaced by the 1960-61 base series of CPI numbers for Agricultural Labourers with effect from September, 1964. The weighting diagram of the series was based on the results of the Second Agricultural Labour Enquiry conducted during 1956-57. The series continued up to October, 1995.

1.11 In the Second Five Year Plan it was observed that the existing wage structure in the country was comprised of a basic wage and a dearness allowance. The latter component in a majority of cases, had relation to Cost of Living Indices at different industrial centres. These indices had been built up on a uniform basis, some of them were worked out on primary data collected about 20 to 25 years ago and were, therefore, not a true reflection on the spending habits of workers. Steps would, therefore, have to be taken to institute enquiries for the revision of the existing series of Cost of Living Indices at different centres.

1.12 It was recognised by the International Labour Office (ILO) that India is among the countries in which major research projects were undertaken to set up procedures to construct new indicators of consumer price changes on new bases and to replace existing ones. Similar developments in other countries which merit special mention are the continuous Family Budget Survey in the United Kingdom together with the new policy for annual index weight revision, the enquiry undertaken in the United States by the Price Statistics Review Committee and the revision of consumer price index for Canada based on the 1957 Urban Family Expenditure Survey, etc. In India as a preliminary to carrying out a major revision in the numerous index series constructed and maintained by various agencies, a family living survey (FLS) was conducted during 1958-59 in 50 important industrial centres all over the country on uniform and scientific lines laid down by the Technical Advisory Committee on Cost of Living Index Numbers which was constituted by the Government in 1954 for the purpose. On the basis of the weighting diagrams thrown up by the survey, a series of Consumer Price Index Numbers on base 1960, had been constructed for all the 50 centres by the Labour Bureau. The method of construction of this series was also laid down by the Technical Advisory Committee. The series embodied significant improvements in scope as well as methodology as compared to many of the old series. Based on the index number series for these 50 centres, an all-India Consumer Price Index Number series on base 1960, had also been compiled on the broad methodology approved by the Technical Advisory Committee. The Committee on Labour Statistics set up by the National Commission on Labour (1967-69), made the following observation in regard to this series of Consumer Price Index Numbers maintained by the Labour Bureau and the National Commission on Labour endorsed the conclusion:

"The new all-India Index with 1960 as base, constitutes distinct improvement over the interim series with 1949 as base".

1.13 Further studies were continued and intensified, when on the request of the Ninth International Conference of Labour Statisticians (1957), the International Labour Office launched a twofold enquiry among all its member States to (a) study the methodology of index-construction adopted by various States and (b) bring out special problems encountered by them in the process of index-construction and maintenance and their approach to these problems. As a result of this

enquiry as well as the comments and opinions received from individual specialists in the field of index number theory and practice, the Tenth International Conference of Labour Statisticians which met in Geneva in October, 1962, laid down international standards for the methods to be used for collecting price information and obtaining adequate weighting patterns. The Conference emphasized, among other things, in a resolution the need for continuing research on important and complicated problems of concept and methodology in the calculation of consumer price index numbers.

1.14 The need for an all-India middle class Cost of Living Index was also felt on several occasions in connection with the fixation and adjustment of the emoluments of Central Government employees. The Technical Advisory Committee on Cost of Living Index Numbers set up by the Ministry of Labour and Employment, recommended in 1954 that family budget enquiry should be conducted to cover, among others, urban middle class population. The Government of India decided in November, 1957 to carry out an urban middle class family living survey to (a) facilitate construction of middle class cost of living indices and (b) ascertain the conditions and levels of living of middle class families. Along with the family living survey of working class population in 50 industrial centres, the survey in respect of non-manual employees was also conducted during the year 1958-59 in 45 urban centres (18 of which were common with the industrial centres) spread over the country as a preliminary to the preparation of Consumer Price Index Number series for urban non-manual employees (constituting the middle class population). Based on the data thrown by the family living survey conducted in 1958-59, the Consumer Price Index Numbers for urban non-manual employees on base 1960, had been regularly compiled by the Central Statistical Organisation (CSO) under the then Department of Statistics of the Cabinet Secretariat, Government of India since 1961 in each of 45 selected urban centres and also for all-India, with a view to depict changes in the level of average retail prices of goods and services consumed by this segment of population.

1.15 Since 1958-59, there had been shortfall in agricultural production during 1963-65, industrial expansion, two wars with Pakistan etc., it was felt necessary to conduct the fresh survey to determine changes in consumption pattern. Therefore, the Labour Bureau conducted the survey in 60 selected centres during 1971-72 and compiled a series of index numbers on base 1971. But due to the appointment of an Expert Committee under the Chairmanship of Prof. Nilakantha Rath of Gokhale Institute of Politics and Economics, Poona (1977) to examine 1960 based series of index numbers, the series on base 1971, could not be released.

1.16 The Government appointed another Expert Committee under the Chairmanship of Dr. K.C. Seal, the then Director General, Central Statistical Organisation in 1980 to examine the details of the proposed family living survey for industrial workers and compilation of new series based on the results of the survey. The fresh survey was conducted by the Labour Bureau during 1981-82 in 70 selected centres. Based on the results of the survey, the Labour Bureau brought out a new series of index numbers for industrial workers on base 1982 with effect from October, 1988 which replaced 1960 based series of index numbers. The survey also covered six additional centres to update old base series of index numbers on the request of the concerned State Governments. These centres, however, did not form part of the all India index series.

1.17 A fresh family living survey was also conducted during the year 1982-83 in 59 selected urban centres spread over the country including 45 centres covered under the 1960 base series of Consumer Price Index Numbers for urban non-manual employees. Expenditure data collected in the survey provided the basis for building up the weighting diagrams for the proposed series of index numbers. Market survey was also carried out during the year 1983 in each of the centres as a preparatory to regular price collection. On the basis of weighting diagrams and the price data being collected from 59 selected urban centres, the CPI series for urban non-manual employees on base 1984-85, is being regularly compiled and released every month since November, 1987 by the Central Statistical Organisation in the Ministry of Statistics and Programme Implementation

1.18 The Labour Bureau also switched over to the new series of Consumer Price Index Numbers for Rural Labourers and its sub-set Agricultural Labourers on base 1986-87, replacing the old series on base 1960-61, with effect from November, 1995.

Purpose of Manual

1.19 It would be evident from the descriptions given in the foregoing paragraphs, that a number of Consumer Price Index series has been available in the country from time to time. This is because of the constant need felt in a developing economy for proper wage regulation of an ever-increasing labour force and also the need for proper indicators for formulation of important economic policies. Consequently, with the growing need for new index series the interest in and appreciation of the finer technical aspects of the index series also grow among the various types of users-employers, wage-earners, economists, etc. Since all the recognised series of Consumer Price Index Numbers are the concern of the Government – both in the States and Centre, the Government owes to present all aspects of the index series it complies and publishes. This Manual is thus, designed to serve as a guide for compilation of Consumer Price Index Numbers in India in general and to the series of Consumer Price Index Numbers which are being complied at national level by the Labour Bureau in Ministry of Labour and the Central Statistical Organisation in the Ministry of Statistics and Programme Implementation, in particular.

Contents and Organisation

1.20 The succeeding chapters of the Manual have been arranged in such a way that the general features of a scientifically-constructed Consumer Price Index series and the several problems that arise in its construction and maintenance, are first discussed followed by a detailed description of the series at present compiled by the Labour Bureau in the Ministry of Labour and Employment and the Central Statistical Organisation in the Ministry of Statistics and Programme Implementation. A chapter on International practices, convention, decision and Resolution has also been included in the Manual.

1.21 Since the Consumer Price Index Numbers have been accepted to determine the dearness allowance of a large number of industrial workers and other employees in public and private sector, it is understandable that there is growing awareness amongst the users for knowing all that goes into the compilation of these index numbers. It is hoped that this Manual would go a long way in meeting this requirement and doubts which stem from lack of understanding on the subject, would not be there.

1.22 An attempt has been made in this Manual to explain, in a simple language, the various conceptual implications involved in the construction and maintenance of Consumer Price Index Numbers. At the same time, care has been taken that the technical and theoretical details which are inescapable concomitant of index compilation, are properly explained.

CHAPTER II

MEASUREMENT NEEDS

Significance of Consumer Price Index

2.1 Economic forces of demand and supply decide to a large extent, the prices of goods and services in an economy. However, market-driven pricing mechanism is generally prone to inflation, despite positive intervention by Government to forestall excessive rise in the general level of prices. Most of the developed and also developing countries have experienced persistent and rapid increase in prices in their respective economies at one time or other. This phenomenon has led to social and political tensions in many countries for the reason that inflation tends to redistribute wealth haphazardly. There is considerable empirical evidence to suggest that mixed economies are inflation-prone. Consequently, a desirable macro-economic policy objective which most Governments strive to achieve, is that of stable prices with policy target fixed to specific values.

2.2 Price stability is considered by the nations the world-over as a crucial pre-condition for sustained growth in economic activity and employment. This policy-focus on low level of inflation makes measurement of inflation imperative for monitoring health of an economy. Presently, there are no international standards for measurement of inflation unlike in the case of many other measures of macro-economic indicators for which standards exist. Increased national and international attention is currently directed towards developing new approaches for the measurement of inflation.

2.3 Inflation is a measure of rise in the general price level or equivalently average level of prices of all the goods and services in an economy. The general price level varies inversely with the purchasing power of a unit of money, say one rupee. As such, inflation is often viewed as a reduction in the purchasing power of money. Inflation does not necessarily mean that the prices of all the goods and services in an economy rise. In an inflationary situation, the average level of prices rise with some items showing excessive rise while others may not follow suit. Unanticipated inflation in the economy leads to redistribution of wealth with no regard to social goals. Consequential effects can be: flow of wealth from fixed-income earners and weakly unionized workers to strongly unionised workers, from lenders to borrowers, from tax-payers to the government, from public sector employees to private sector employees, and from profit-earners to wage-earners.

2.4 A macro-economic policy measure mostly used by the countries across the world, to alleviate the adverse effects of inflation is indexation. Indexation is the periodic adjustment of money-value (e.g. wages, salaries, pension, rent, contract amount/charge/rate, etc.) in relation to changes in a price index that reflects inflation. The underlying principle of indexation is to enable the society to live with inflation in such a way that no individual or group suffers disproportionately.

2.5 Inflation can be measured in different ways. One method is to use the Implicit Price Index (IPI) often called the Gross National Product (GNP) deflator which by definition (for any year) is the ratio of GNP at current prices to the GNP at constant prices. Thus, in computation of IPI all the goods and services produced in the economy, are involved. Another method of measuring the inflation is to use a price index.

2.6 In principal, a Consumer Price Index (CPI) measures the changes over time in the level of prices of goods and services that a reference population acquires, use, or pay for consumption. The population that falls within the scope of an index is termed as the reference population. In practice, a CPI measures the cost of purchasing a fixed basket of goods and services. The coverage and applicability of CPIs are generally limited to specified socio-economic groups.

2.7 Like the CPI, the Wholesale Price index (WPI) which in many countries is termed as the Producer Price Index (PPP), is also widely used for measuring the inflation. The official measure of inflation in the Indian economy is based on WPI. The WPI measures the changes over time in the

level of prices at the level of either the wholesaler or the producer, and does not take into account retail margins. As such, the WPI measures the price changes from the production side and not from the consumption. Moreover, the price changes in the service sector are not duly accounted for in WPI, even though they are largely influenced by the inputs from the industrial sector. In contrast to a CPI, the WPI measures the price changes at an early stage of the distribution system.

2.8 From the viewpoint of a consumer, inflation concerns the purchasing power of his money. Under the assumption of a given utility function for the consumer, the CPI for period t+1 measures how much more or less money the consumer needs to spend in order to be as well off as in period t. As such, the inflation estimates based on CPI are considered more representatives of temporal changes in consumer prices than those based on WPI.

2.9 Theoretically, a comprehensive and objective measure of inflation is a price index that measures changes in the monetary value of an entire set of consumption goods and services purchased by households in monetary transactions. Three elements are involved in this definition - the goods and services must be individual consumption goods and services as defined in the System of National Accounts (SNA), the expenditure must be incurred by households and not by other units, and the expenditure must be incurred in monetary transactions. The coverage of an ideal and comprehensive measure of inflation is thus, much more specific than that of a CPI. Inclusion of additional items that are not part of household consumption expenditure, in a CPI for arriving at a comprehensive measure of inflation, has got the danger of leading to degeneration of the CPI into a vague and ad-hoc short-term price index that lacks any clear meaning, coverage or purpose.

Measurement Needs and Indicators

2.10 Analysis of data on prices is an important component in the monitoring of progress and health of an economy. Although, various departments/organizations of Central and State Governments collect prices of several commodities and services, in-depth analysis of price data has been seldom carried out

2.11 An index number is a single figure that shows how the whole set of related variables has changed over time or from one place to another. In particular, a price index reflects the overall change in a set of prices paid by a consumer or a producer, and is conventionally known as a Cost-of-Living Index or Producer's Price Index as the case may be. The purposes of compilation of a price index are to provide:

a measure of general price level,
a price deflator
purchasing power per unit currency
a measure of comparing price movement among different sectors of an economy, and
an aid to business forecasts.

Thus, the price index provides one of the basic parameters needed for economic planning and policy formulation by Government as well as private organizations. The present system of collection of data and compilation of price indices at national level, encompasses wholesale prices and retail prices for industrial workers, urban non-manual employees and rural labourers including agricultural labourers.

2.12 CPI is a current socio-economic indicator that needs to be constructed:

- to measure the changes over time in the general level of prices of consumption goods and services that the reference population acquire, use or pay for consumption.
- to provide one of the basic parameters needed for economic planning and policy formulations by Government as well as private organizations.
- to adjust the taxes, fines or fees levied by Government so as to maintain the burden upon the people paying taxes, fines, etc. constant in real terms.
- for obtaining constant-price estimates of consumption expenditure for national accounting. ''

- for indexation of wages and salaries in contracts of employment. This presumably avoids the need to renegotiate the contracts when prices rise.
- for indexation of prices in contracts for the supply of goods and services by firms.

2.13 The Wholesale Price Index (WPI) is compiled and released at national level by the Office of the Economic Adviser (OAE) in the Ministry of Industry on weekly basis. There are four CPIs compiled and released at national level on monthly basis. These are CPI for Industrial Workers (IW), CPI for Agricultural Labourers (AL), CPI for Rural Labourers (RL), and CPI for Urban Non-Manual Employees (UNME). While the first three are compiled by the Labour Bureau in the Ministry of Labour and Employment, the fourth by the Central Statistical Organisation (CSO) in the Ministry of Statistics and Programme Implementation.

2.14 Four CPIs viz. CPI(IW), CPI(AL), CPI(RL) and CPI(UNME), compiled at national level, reflect the effect of price fluctuations of various goods and services consumed by specific segments of population in the country. These indices do not encompass all the segments of the population and therefore, do not reflect the true picture of the price behavior in the country as a whole. As such, there is a need to compile a CPI for entire urban and rural population of the country to measure the inflation in Indian economy based on CPI, and this exercise has since been initiated by CSO; the first such index will be released from 2010-11.

2.15 Given the different objectives of existing price measures and their limitations, it transpires that there is scope to enhance the analytical value of information provided by different CPIs by drawing them together, and presenting as a system of indices that is specially designed to support measurement and analysis of inflation.

CHAPTER III

CONSUMER PRICE INDEX

Concepts and Definitions

3.1 Index numbers are indicators of changes in certain economic, social and related phenomena. The comparisons may be between periods of time, between places or between like categories, such as persons, objects, etc. Most of the current indices are indicators of changes over time in respect of economic characteristics like prices, output, wages, etc. These are termed as price index, production index, wages index, etc.

3.2 An indicator of the average price movement over time of a fixed basket of goods and services is the Price Index. The item basket of goods and services is determined in view of whether the changes are to be measured in retail, wholesale or producer prices, etc. The item basket will vary for economy-wide, regional or sector specific series. At present, separate series of index numbers are compiled to capture the price movements at retail and wholesale level in India.

3.3 A Consumer Prices Index (CPI) is designed to measure changes over time in the level of retail prices of selected goods and services on which consumers of a defined group spend their incomes. In view of the popular misconception about the relative meanings and purposes of the Consumer Price Index and Cost of Living Index, and the general tendency to equate the two, it is pertinent to discuss the distinction between the two concepts and bring out clearly what they purport to measure in relation to one another.

3.4 The changes in consumer prices affect the real purchasing power of households' money incomes and hence, the standard of living or welfare that they can achieve out of a given money expenditure. An index may aim to measure the effects of price changes on the cost of achieving a constant standard of living (i.e. level of utility or welfare) as distinct from maintaining the purchasing power to buy a fixed consumption basket of goods and services. This concept is called a Cost of Living Index (COLI). When the prices are rising, it is intended to measure the minimum percentage by which households' incomes and expenditures would need to be increased in order to enable the households to continue to enjoy the same standard of living.

3.5 Maintaining a constant standard of living does not imply continuing to consume a fixed basket of goods and services when the prices of different goods and services are changing not uniformly with respect to each other. A COLI allows for the fact that households who seek to maximize their welfare from a given expenditure, can benefit by adjusting their expenditure patterns to take account of changing relative prices by substituting goods that have become relatively cheaper, for goods that have become relatively dearer.

3.6 The cost of living of a defined group of consumers, at any point of time, means the cost of the goods and services consumed by an average unit of the group (unit being a household or a family, etc.) to attain a certain level of satisfaction or level of living or level of utility, etc. The basket of goods and services consumed would depend on (a) the price system prevailing at a given point of time, (b) the tastes and preferences of the group at that time and (c) the level of living (or satisfaction) being considered. While (c) is a restrictive condition, (a) and (b) are variable factors, each related to the other in a complex way. At two different points of time, (a) and (b) could be different even when condition (c) is held constant. Hence, the basket of goods and services required at two points of time to attain the given level of satisfaction could be different. If the costs of such baskets of goods and services determined according to current tastes and preferences in relation to the prevailing price system at different points of time, are compared with the cost at a given point of time, taken as the base-period, the measure so obtained may truly be termed as COLI.

3.7 It is obvious that the construction of such an index is operationally difficult, involving determination of the current basket of goods and services in terms of current level of living or

satisfaction at every point of time for which an index is compiled. In India, COLI is not compiled. As an approximation to COLI, a fixed basket price index (both the nature and quantity of the constituent items of the basket are to be kept fixed during the life time of an index) i.e. Consumer Price Index (CPI) which only gives the true price changes in the cost of fixed consumption basket, is compiled. In practice, only a fixed basket of goods and services, generally the one derived by conducting a family budget enquiry among the population group concerned, is priced over time and its cost at different periods is compared to its cost in the base-period which should synchronise, as far as possible, with the period of the family budget enquiry. This practical approximation to the COLI is generally known as consumer Price Index. Such an index can approximate to the COLI only if the factor (b) mentioned in paragraph 1.6 above (i.e. tastes and preferences of consumers), does not undergo significant changes over a period of time, only then the level of satisfaction attained by consuming the fixed basket of goods and services, could be considered to have remained more or less stable. Since this assumption would normally hold good only over short period of time, it would be desirable to have a price index series, based on a fixed basket of goods and services, for a period of say 5 to 10 years and thereafter, the basket of goods and services should be revised by conducting fresh family budget enquiry among the concerned population group. In this context the Sixth International Conference of Labour Statisticians (1947) in fact, recommended the "the pattern of consumption should be examined and the weighting diagram adjusted, if necessary, at intervals of not more than ten years to correspond with the changes in the consumption."

3.8 The Price Index Numbers that are presently published by most countries across the world, purport to show changes overtime in the level of retail prices and are in fact, Consumer Price Index Numbers even though some of them are still termed as cost of living index numbers. In order to obviate misunderstanding arising from imperfect nomenclature, the Sixth International Conference of Labour Statisticians (1947) recommended the substitution of the term 'Cost of Living Index' (which was in wide use at that time) by the more logical and appropriate nomenclature 'Consumer Price Index'. Most countries including India, have adopted the nomenclature 'Consumer Price Index' for their official indices of retail price level. The term 'Retail Price Index' which is equally appropriate, is also current in some countries such as the United Kingdom, Malaysia, Poland, etc.

Coverage

3.9 In defining a Consumer Price Index, the scope and coverage of the index should be clearly explained. For example, it should specify the population group covered, say, urban wage earners, agricultural laboureres, rural population, etc. The geographical area covered e.g. a particular city, a well-defined industrial area or a state should also be specified in respect of a Consumer Price Index. The population group for which Consumer Price Index Numbers are generally in demand, is the group of wage earners living in an urban or semi-urban centre, because in organized sectors of employment the regulation of wage and/or dearness allowance in accordance with movement in the Consumer Prices Index Numbers is an increasingly common practice now-a-days. The desirability or avoiding multiplicity of Consumer Price Index Numbers was considered by the Technical Advisory Committee on Cost of Living Index Numbers set up by the Government of India, at its sixth meeting held in September, 1961. The Committee inter-alia, made the following recommendation:

> "The Committee expressed itself against multiplication of Consumer Price Indexes indefinitely by building up new series for various sections and sub-sections of population at each and every place where industries are located, and suggested that to the extent possible, existing index numbers should be used for neighbouring centres and allied sections of population. The broad pattern already recommended by the Committee included separate index numbers for
>
> industrial workers,
> agricultural labourers, and
> non-manual employees in urban areas.

It was reiterated that this pattern would be adequate for all practical purposes and groups of population."

3.10 In view of the above recommendation, the population groups/areas for which Consumer Price Index Numbers are presently compiled are very much restricted in India. Thus, in India where separate series of Consumer Price Index Numbers for clerical group of workers are not in vogue, the index Numbers relating to the industrial workers are frequently utilized for determining, adjusting or revising the wages or dearness allowance of the clerical workers also.

The Common Index Formulae

3.11 Following three formulae can be used for computation of a price index:

Laspeyres' Formula
Paasche's Formula
Fisher's Formula

The common formula for the Consumer Price Index as defined in paragraph 1.7 would be

$$\frac{\text{Total cost of a fixed basket of goods and in the current period}}{\text{Total cost of the same basket in the base period}} \times 100$$

3.12 As already stated, the fixed basket of goods and services would be determined on the basis of a family budget enquiry among the population group concerned. The family budget enquiry would yield information on the consumption pattern of the families belonging to the group for the period to which the survey data relate. If the survey data relate to the base-period of the index series, as is generally the case, the above formula is the well known Laspeyres' formula. Thus, if the quantities of different goods and services consumed by an average family in base period are denoted by q_o's and the corresponding prices in the base-period and current period by p_o's and p_n's respectively, the index for the current period (I_n) would be

$$I_n = \frac{\Sigma\, q_o\, p_n}{\Sigma\, q_o\, p_o} \times 100 \qquad \text{---------- (1)}$$

the summation denoted by the Greek letter Σ (sigma), extends over all the goods and services consumed. Thus, the numerator in (I_n) is the cost of buying the goods and services (as purchased in the base-period) at current prices, while the denominator indicates the corresponding actual cost in the base-period. With every successive current period only P_n's in the formula would naturally vary while the other terms are held constant over the whole life of the index series.

3.13 If the quantities of goods and services consumed are not kept constant but vary in each current period according to current consumption patterns (for which family budget enquiry has to be conducted during every successive period when the index is compiled – a proposition that is generally not feasible), the formula at (1) above, would be changed by replacing q_o's by q_n's (current quantities of consumption). Thus, the formula

$$I_n = \frac{\Sigma\, q_n\, p_n}{\Sigma\, q_n\, p_o} \times 100 \qquad \text{---------- (2)}$$

is known as the Paasche's formula but it is seldom used in practice mainly because of the operational difficulty of conducting family budget enquiry during every successive period for which the index is compiled. Even in countries where detailed and up to date national accounts statistics are available, current quantities of goods and services consumed by average households belonging to the reference population may not be feasible. Since release of a CPI is a time bound statistical exercise, use of Paasche' formula besides being impractical will unduly delay the release of the index.

3.14 In normal economic situations, the Laspeyres' index shows an upward bias (in relation to the true cost of living index) with the passage of time while the Paasche's index shows a downward bias. It is for this reason that Irving Fisher, a renowned econometrician, constructed an ideal index as the geometric mean of the Laspeyres' and Paasche's indices. Since the geometric mean lies in between the two and hence, it is the nearest to the true cost of living index. The Fisher's ideal index is given by

$$I_n = \sqrt{\left(\frac{\Sigma q_o p_n}{\Sigma q_o p_o}\right) \times \left(\frac{\Sigma q_n p_n}{\Sigma q_n p_o}\right)} \times 100$$

3.15 An overwhelming majority of the Consumer Prices Indices in vogue in different countries across the world, are based on the Laspeyres' formula mainly due to practical simplicity in its compilation as the weights are determined in the base period which remain constant during the entire life of the index..

In the following paragraphs the broad principles involved in the construction and maintenance of Consumer Price Index series of the Laspeyres' form are discussed. The discussion is based mainly on the experience of the Labour Bureau , Ministry of Labour and the Central Statistical Organization, Government of India and is inevitably oriented to the Indian conditions.

Family Budget Enquiry

3.16 There are two essential constituents of a CPI namely, (i) the weighting diagram and (ii) retail prices. The weighting diagram is built up at the start of the series usually on the basis of a family budget enquiry (to determine the consumption pattern) among the population group to which the CPI relates. The weighting diagram along with the base prices of the goods and services, constitutes the basic framework on which the index series is compiled periodically. The recurring data necessary for its compilation are the retail prices (of goods and services featuring in the index basket) collected periodically at suitable intervals. The principal aim of the family budget enquiry or household consumer expenditure survey is to collect data pertaining to consumption expenditure of the target population for determination of the content of goods and services consumed by them for computation of weighting system for a CPI series.

3.17 The first thing, therefore, is the conduct of a family budget enquiry, the scope and method of which hinges the reliability of the weighting diagram of the index series. It is thus, necessary to ensure that the family budget enquiry is based on correct sampling techniques. Care has to be taken to ensure that the sampling frame used for drawing the sample is not inaccurate, incomplete, inadequate or out of date. As in any other sample survey, the question of non-response merits particular attention in a family budget enquiry. A high degree of non-response or rejection invalidates the results and the difficulty is not resolved by the device of substitution or choosing an initial sample of more than adequate size. As regards the choice of an optimum sample size, it is well known that the same depends, to a large extent, on the variability of the consumption pattern of the population group to be surveyed. However, in a vast country like ours, the limitations imposed on this aspect by cost factor have also to be reckoned with. The family budget enquiries among non-manual employees in the urban areas, working class population in urban as well as semi-urban and rural areas, and rural labourers including agricultural labourers, have necessarily to depend on the interview method because of the relatively low standard of literacy among the majority of the population concerned. This necessitates the employment of a large body of field investigators well trained in the techniques of interviewing and eliciting reliable information. The interview method ensures almost hundred percent response from the informants unlike in other approaches.

3.18 The consumption expenditure data arrived at from a family budget enquiry, are normally in terms of averages for a month. The data are collected for a full year (any continuous twelve-month period) and the monthly averages are worked out therefrom. This is necessary for removal of seasonal effects. But when the interview method is followed and interviewees can be expected to furnish the required data from their memories (which cannot be reasonably expected to be stretched beyond a period of say, one month), it becomes necessary to stagger evenly the entire sample of families over a full twelve-month period so that sample families interviewed in different months are required to give information only for the month preceding the date of enquiry and all the twelve months of the year get covered through the various monthly sub-samples.

3.19 The data on family budget are collected through a well designed schedule of enquiry covering consumption expenditure over a wide range of goods and services on which the target population incurred expenditure. The average budget (expenditure of an average family on various goods and services) derived from the results of the family budget enquiry, forms the basis of the weighting pattern for the CPI. The data on house rent collected form the basis of six-monthly repeat house rent surveys needed for compilation of House Rent Index.

3.20 The sole objective of the family budget enquiry is to collect basic data on average family budget for building up a weighting diagram for a Consumer Price Index series but when an enquiry or a survey on a large scale is conducted, it is useful to collect information on other economic and sociological aspects of the families/ households surveyed, since this enlargement of scope does not entail significant additional cost and yields a wealth of information on different facets of levels of living, etc. The modern concept of a 'family living survey' (as the survey is now called because of their enlarged scope) does not rest with the collection of family budget data alone, although this is the primary objective. It is taken to encompass collection of data not only on various goods and services consumed by the families/households, which go to make up the weighting diagram of a Consumer Price Index series, but also on the whole complex of circumstances affecting the well being, material and non-material of the family. Such data help in analyzing the various components of levels of living covering different spheres, e.g. health, nutrition, education, conditions of work, employment situation, social security, housing, savings, recreation and entertainment, etc. and studying the total inter- related effects of these components.

Average Budget and its Classification

3.21 The average budget derived from a family budget enquiry consists of all items of expenditure reported by the families surveyed. These items can be broadly classified as:-

Consumption expenditure
Non-consumption expenditure.

It is obvious that only consumption expenditure should be considered for the purpose of a weighting diagram for construction of Consumer Price Index series. Non-consumption expenditure like, income tax and other direct taxes, charities and gifts, interest premia, etc. would have to be omitted particularly because such non-consumption expenditure cannot be satisfactorily priced, although it is possible to measure the changing cost to consumers due to variation in income tax rates, etc. but the price component of that cost cannot readily be segregated. However, even among items of consumption expenditure, there are a few items of expenditure like, expenditure on subscriptions, ceremonials, savings and investments, etc. which have to be ignored because of difficulties of pricing. The last two items, viz., savings and investments can be regarded as constituting consumption in the long run, i.e. over a period of much longer duration than the one year period of the family budget enquiry. Similarly, the expenditure on durable goods like refrigerator, motor car, house, etc. comes on the border line of expenditure and savings. While constructing the Consumer Price Index series for what is termed as affluent population group, such expenditures cannot be ignored but the problem of durable goods does not assume much significance while considering low-income population group.

3.22 After exclusion of all the items of non-consumption expenditure and some unpriceable items of consumption expenditure (as stated in the preceding paragraph) from the average family

budget, there remains a set of consumption expenditures each of which can be represented by a price identifiable with a specific quantity of commodity or service. But these items of expenditure would be quite large in number and need to be properly classified and grouped so as to facilitate imputation of weights at group/sub-group level. The consumption groups adopted in the series of Consumer Price Index Numbers for Urban Non-Manual Employees [(CPI(UNME)] released at national level, are as follows:-

Food, Beverages and Tobacco
Fuel and light
Housing
Clothing, Bedding and Footwear and
Miscellaneous

3.23 The above grouping is done based on the criterion of purpose of expenditure. Those items of expenditure which do not belong to any one of the groups mentioned from 1 to 4 above, are relegated to the last group viz. Miscellaneous which ultimately becomes a sort of residual group containing widely dissimilar items. This leads to the need for further sub-grouping of the items in the various groups to achieve greater homogeneity within the sub-groups as compared to the groups. In the series of [(CPI(UNME)] released at national level, the groups 'Food, Beverages and Tobacco'; 'Clothing, Bedding and Footwear' and 'Miscellaneous' have been further divided into sub-groups as follows:-

Group **1** **Food, Beverages and Tobacco**
- Cereals and cereals products
- Pulses and pulses products
- Oils and Fats
- Meat, Fish and Eggs
- Milk and milk products
- Condiments and Spices
- Vegetables
- Fruits
- Sugar, Honey etc.
- Non-alcoholic Beverages
- Prepared meals and refreshments
- Pan, Supari, Tobacco etc.

Group 2 **Fuel and Light**

Group 3 **Housing**

Group 4 **Clothing, Bedding and Footwear**
- Clothing and Bedding
- Footwear

Group 5 **Miscellaneous**
- Medical care
- Education
- Recreation and Amusement
- Transport and Communication
- Personal care and effects
- Household requisites
- Others

The housing group needs special mention as the expenditure on its major component viz., house-rent has two distinct aspects which are:-

Rent paid for hired tenements

Rent (i.e. estimated rental value) of self-owned houses

In India, the general practice in family budget enquiries is to estimate the rents of self-owned houses (whenever such instances occur) on the basis of prevailing standards, and the estimated rents are pooled with the actual rents paid for hired tenements by sample families, to arrive at the average rent paid per family. This eliminates the need for pricing home-ownership costs in the index. In case the houses are provided free of rent to all the members (or an overwhelming majority) of a specific population group say, working class population in mining and plantations in this country where the employers have to provide free houses under statutory obligations, one alternative would be to omit the housing group altogether from the index. But in the series of Consumer Price Index Numbers for Industrial Workers on base 1982, compiled by the Labour Bureau, the treatment for self-owned houses as stated above i.e., estimating the rental value, has been accorded to rent-free houses in the family budget enquiry. The index for free houses is kept constant at 100 because the rental value of houses, which are provided rent-free by the employers on a mass-scale, cannot be normally expected to show any movement (like the rents of hired tenements) at least during the life of the index series.

Construction of Weighting Diagram

3.24 In family budget enquiry data are collected on all items on which money has been defrayed by families but only such items which involved consumption expenditure, are included in the average budget for deriving the weighting diagram. Secondly, only selected items are taken into index calculation because it is neither practicable nor necessary to include all items featuring in the average budget. The longer the list of items, the greater will be the time, labour and problems involved in the regular collection of their prices and computation of the index, and hence, it would be operationally difficult to control what are called non-sampling errors. Moreover, the price movement of one particular item can often reflect the price movements of several other allied items. In fact, all the items featuring in the average budget, are not equally important. The criteria generally adopted for selecting the items, are their importance and representativeness in the respective consumption groups, availability of suitable units for pricing and the possibility of collecting price data on a continuing basis. Thus, the items on which significant expenditure (according to ILO those items accounting for one per cent or more of total expenditure incurred by an average family at sub-group level) is recorded in the average budget and those with characteristic price trends, are generally included in the index. In the current series of (CPI(UNME) released at national level, the items which are not popular among the target population and having expenditure less than 1% at sub-group level, are not included in the index. In fact, there will be many items of expenditure in a group or sub-group for which it may not be necessary to represent individually by separate priced items in the index because of the negligible expenditure incurred on such items.

3.25 Only a sample of items from each group/sub-group is included in the index basket. The weights of items featuring in the average budget, which are not included in the index, are either added to a particular allied item or distributed over several items included in the index, so that the total expenditure in the average budget is fully taken into account in the weights used in computation of the index. This process is known as 'Imputation of Weights'.

Imputation of Weights

3.26 The mechanism of the weighting system is such that no loss in accuracy will result if out of a few items having similar price-trends, only one is selected for pricing and the total weight of all other such items is assigned to this priced item. Of course, the items considered should be related to one another from the consumption point of view as otherwise the similarity in price trends which is the determinant, might be spurious. This principle is known as imputation of weights. It is also possible that base prices may not be available for certain items of expenditure. This could happen because the results of family budget enquiry become available only after some time since the completion of data collection work of the enquiry but the work of collection of base prices has to be started simultaneously with the launching of the family budget enquiry so that price series

for different items of consumption might be available continuously from the base-period onwards. Hence, the items of expenditure to be represented by various goods and services for pricing regularly, are not known at the time of institution of the price collection work which has, therefore, to be started with a tentative list of goods and services selected on the basis of a broad assessment of local consumption habits**,** item basket of the current/earlier series as also discussions based on the knowledgeable persons/experts**.** Thus, if the price series corresponding to any item of expenditure subsequently revealed by the family budget enquiry, has not been collected, it becomes difficult, if not altogether impossible, to gather the same for the back period at the later date. In the construction of any series of Consumer Price Index Numbers, a few items get omitted in this manner in spite of best efforts to make the tentative list of items as comprehensive and exhaustive as possible, and such items have necessarily to be treated willy nilly as unpriced items. The expenditures recorded on all such items in the family budget enquiry, have to be imputed to other priced items whose price movements can be expected to follow the same or similar trends as those of the unpriced ones.

3.27 From the technical point of view, the criterion for imputing the expenditure on any item to the expenditure(s) recorded on other item(s) should be 'similarity in price movements'. However, when the expenditure on an item whose price series is not available, is sought to be imputed, it may not always be possible to establish, through an empirical study of the price data, that the items in question belong to the same price family. In such cases, the similarity in other economic characteristics has to be looked for, which could lead to a reasonably plausible inference regarding similarity in price movements. The other economic characteristics can be: (i) one is a by-product of the other priced item, (ii) they satisfy the same want, and (iii) they are made of same or similar type of material. However, there are certain items whose expenditures cannot be imputed to any single item within the sub-group/group on the basis of any of the above criteria. In such cases, the only practical alternative is to impute expenditures to all the remaining (priced) items in the concerned sub-group/group in proportion to the expenditure recorded on these items. The underlying assumption in this procedure is that the price movement of the imputed item(s) would follow the combined price – movement of the remaining items of the sub-group/group (combined in proportion to relative expenditures recorded in the average budget). In general, a similar assumption applies to all cases where imputation is done to more than one item.

3.28 In practice, the imputation is done at four levels, viz. (a) item level, (b) section level, (c) sub-group level and (d) group level. Item level imputation consists of straight addition of expenditure of one or more unpriced items to a priced item within the same section. Section level imputation consists of a proportionate distribution of expenditure of one or more unpriced items over several priced items within the same section. In these cases, one or more unpriced items follow or are assumed to follow the combined price trend of several priced items within the same section. The remaining two levels of imputation consist of a proportionate distribution of expenditure of one or more unpriced items over all the remaining priced items included in the sub-group/group. In such cases, the excluded items can neither be taken to follow the price trend of any specific priced item of the sub-group/group, nor the combined price trend of the included items of the concerned section. The implicit assumption of imputation is that the price behavior of the imputed item is the same as that of the item/section/sub-group/group in which its expenditure has been imputed. Some examples of imputation are given below:

1.	Paddy, Chira, Muri, Khoi and other rice products	can be imputed to rice (item level)
2.	Less important vegetables in sections: root, leafy, non-leafy vegetables	can be imputed to the concerned section (section level)
3.	Other milk products	can be imputed to sub-group: milk and milk

		products (sub-group level)
4.	Cinnaman, Cassia and other items	can be imputed to sub-group: condiments and spices (sub-group level)
5.	Prepared meals	can be imputed to group level (group level)

3.29 When the expenditure on any item is imputed to the expenditure on another item, the former is simply added to the latter. If the expenditure has to be imputed to more than one item, it is distributed over the relevant items in proportion to their respective weights (i.e. expenditures). Thus, the final expenditure weight allocated to a priced item includes in addition to its own weight, weights for unpriced items imputed to it wholly and also the proportionate share of weights of other unpriced items imputed to it partially at sectional/sub-group/group level(s). The resultant expenditure on each item which is finally retained for pricing is expressed as percentage of the total expenditure accounted for by all the items included in the section/ sub-group/group to yield the final weight of the items within the section/sub-group/group. It may be noted that it is customary to refer to percentage expenditures as 'weights'. Similarly, the weight of a consumption sub-group/group is obtained by expressing the total expenditure on the sub-group/group as a percentage of the total expenditure on all sub-groups/groups.

3.30 With the allocation of weights to individual items within each consumption sub-group/group and to the different consumption sub-groups and groups, the weighting diagram is fully established. It is important to note that although the final weighting diagram comprises of a limited set of items whose prices are represented in the index, but whole of the priceable consumption expenditure revealed by the family budget enquiry, is represented in its entirety by this weighting diagram. In other words, no item of the priceable consumption expenditure revealed by the family budget enquiry, however, trivial, is ignored. It is necessary to point out that imputations constitute a potential source of error in the index series. Therefore, utmost care should be taken to keep the proportion of imputed weight as small as possible in relation to the weights of all the included items, and the coverage of items in different sub-groups/groups maximized to the extent possible.

Determination of Item Basket

3.31 Based on the results of family budget enquiry among the target population, the item basket of goods and services is determined. The family budget enquiry yields information on the consumption pattern of the target population for one year. All items accounting for a significant proportion of expenditure in the group or sub-group to which they belong, are included in the item basket, The items selected should represent the price trend of other items not included in the index. The items such as salt, match box, tea, etc. consumed by a significant proportion of the target population, though having an insignificant share of expenditure, are also included in the item basket.

3.32 Each item of expenditure represented on the final weighting diagram as discussed in the preceding paragraph, has to be priced. Suppose a particular item is considered say, rice. The average expenditure recorded on this item in the final weighting diagram represents the average expenditure of target population group on rice and also on various other allied items which have been imputed to rice either at the sub-group (cereal and Cereal Products) or at the group (Food) level. The price of rice will represent all this expenditure but then, the question arises as to what varieties of rice are to be priced. The members of target population group might be consuming several varieties of rice in different proportions according to their varying tastes and preferences. But it is not feasible to price all the varieties of rice and combine the prices in the exact ratios of their consumption. Moreover, it would not be necessary to do so because the pattern of

movement in prices for all the varieties cannot be expected to be dissimilar and hence, it would suffice to represent in the index the prices of one or two varieties which are popular among the target population. In this way, the final sample of items that is, goods and services, is drawn up for pricing. Suitable popular specifications and units for pricing are then chosen on the basis of market enquiries.

3.33 It should, however, be noted that drawing up of specifications and units for pricing is to be done very carefully keeping in view certain practical considerations. For instance, although it is theoretically assumed that for measuring pure price change the prices should always be collected for the same specification throughout the life of the index series, the possibility that the initially chosen specification may sometimes go out of the market either temporarily or permanently, cannot be ruled out. In such a contingency, it would become necessary to switch over to some alternative specification which is preferably comparable in quality and standard to the original. Also, the alterative specification should be equally representative of the group of items of expenditure (in the weighting diagram) represented by the original item-sample. Hence while drawing up suitable specifications, the general availability of comparable alternative specifications (and their likely availability in the event of the original specification disappearing from the market at a future date) has to be kept in view. It is also necessary to ensure that the specification adequately identifies the particular article priced. For instance, a specification like "Tooth Paste, medium quality, big size" would not sufficiently specify the article to be priced, since several brands conforming to the above specification will be available in the market, not necessarily at the same price. Hence, it is essential to add a particular brand name also to the specification in order to uniquely identify the article to be priced. While doing so, not only the popularity of the brand in question among the target population should be kept in view but also whether it could be substituted appropriately if and when the need arises. Although strict adherence to fixed or comparable specifications is necessary in order to avoid spurious variations in the index which is intended to measure 'pure' price-charges only, it is not often possible in practice to obtain a comparable substitute. In such cases, a non-comparable substitute is chosen but the price series of the substitute has to be adjusted appropriately to correct for quality variation so that the index takes account of pure price-changes only.

Collection of Price Data

3.34 The concept of 'price' associated with the theory of Consumer Price Index Numbers can be expressed as the money cost of an article of a specified unit of sale to the consumer. This definition makes it clear that the prices to be collected for the compilation of Consumer Price Index Numbers should conform to the following characteristics:

- They should in each case relate to a specific unit of sale which is common unit of transaction at the retail stage i.e. purchases by the consumer
- The price should be the actual amount, in terms of money, charged to the consumer for the specified unit of transaction.

3.35 The first characteristics is a basic one. If for any commodity or service, the criterion stated in (i) above, cannot be met, then it would mean that price and cost are indistinguishable as far as the commodity is concerned and hence, the commodity cannot be priced in the ordinary way. This situation arises in the case of house-rent. As a 'standard house' cannot in practice, be uniquely specified, it cannot be priced like other goods and services. Hence to measure price changes in this case, recourse is to conduct periodical surveys for collection of house rents of a suitably selected fixed sample of dwellings.

3.36 The second requirement viz. the price should be one charged to the consumer, implies that the price would be retail price inclusive of all indirect taxes like excise duty, sales tax, etc. which are realised from the consumer and it should be exclusive of rebates, etc. allowed to consumer in general. The consumer's price for purpose of compilation of Consumer Price Index Numbers should be the one actually paid or payable in respect of an article which is in the normal saleable condition. In other words, it should not be the price that is charged for stale, damaged,

shop-soiled or otherwise imperfect goods. It is not desirable normally to take account of conditional rebates and discounts attached to some price (like electricity charges for instance) because all consumers may not at all times be in a position to avail of these concessions. Only those concessions which automatically apply to all the consumers, may be taken into account.

3.37 The prices form the more important component of Consumer Price Index Numbers, rather than the weighting diagram. In fact, a small discrepancy in the price data is likely to give rise to a larger error in the index than a similar discrepancy in the weighting diagram. Hence, care has to be scrupulously exercised in collecting the prices for any item which could statistically be taken as representative of the entire universe of consumer transactions in respect of that item. This universe involves various varieties of that item purchased from several outlets in different markets at different points of time within the period considered. Thus, the sample price quotations have to be collected through sampling along three dimensions, viz. (i) over the geographical spread of the region, (ii) over time and (iii) over the entire gamut of specifications for each commodity.

3.38 According to requirement (i) of paragraph 3.37 above, the sampling has to be done over all the shops in all the markets in the area, catering to the target population. It may not be possible to cover all the markets specially if the region/area in question is quite large. Hence, after a study of factors like the percentage of target population group to which different markets cater, importance of different markets in regard to certain types of consumer goods (e.g. some markets may be exclusively patronized for clothing goods, etc.), consumer preferences, price-trend mechanisms, availability of resources for price collection work, etc.; a sample of the markets may be chosen. The sample could be drawn on purposive judgment or on probability basis depending on the circumstances. For instance, for working class population in this country judgment-sampling of markets for price collection is generally preferred to a probability sampling mainly because of restricted choice and widely varying importance of the different markets. The next step would be the selection of representative outlets within the chosen markets. The selection of outlets has to be made separately for different groups of consumer goods and services, e.g. grain-shops for cereals, pulses, etc. cloth shops for clothing goods, general merchandise shops for other miscellaneous goods, barber shops for hair-cut, and so on. For selection of outlets there is a scope for adoption of probability sampling or judgment sampling or a judicious combination of both. For probability sampling proper frames, i.e. list of all outlets for each class of consumer goods, are necessary. But in unorganized and periodical markets (i.e. markets assembling at a place on specified days of a week) which are a common feature of semi-urban and rural areas in this country, it is more convenient to select a judgment sample of outlets. For a number of commodities in such cases, well-established outlets are also sometimes not found and the prices have to be collected from vendors and pavement shops, etc. This also leads to difficulties in fixing firm specifications for some priced articles. Thus, much of the organisation of price collection work in unorganized markets has to be carefully done through intensive on-the-spot investigations with a view to ensuring continued representativeness of outlets, specifications, etc. over a period of time. Even then substitutions of outlets and specifications in such cases are not infrequent. For this purpose, it is always desirable to maintain a reserve list of outlets and specifications from which substitutions can be readily made as and when the need arises. The size of the sample of outlets has also to be determined with reference to inter-shop variability in the prices for different goods and services, in the concerned markets.

3.39 The second dimension on which sampling is resorted to, is 'time'. The frequency of retail price collection depends on the nature of price variation over time. For standard items, i.e. goods manufactured under patent specifications, etc. the price variations would occur over longer periods and it may not be necessary to collect the prices at intervals shorter than say, a month. In the case of items like house-rent it may be sufficient to take account of changes at even longer intervals say, six months. For other common items of consumption a shorter frequency than a month say, a week is generally preferable. It is important to maintain equal time intervals between the collection of successive quotations, i.e. for instance, if the prices of an item are collected every Saturday in the morning hours, it is desirable to stick to the same hours and day of week every time**.** This is more so in case of fresh vegetables and fruits as with passage of time during the day the quality of items and hence the resultant prices undergo change. It is

necessary to avoid spurious changes in prices due to cyclical effects of varying durations arising from varying circumstances of sale, etc.) between the two successive points of time when the price quotations are collected. In other words, the measurement of pure price-changes has to be attempted after elimination of all possible extraneous factors influencing price changes.

3.40 As per requirement (iii) of paragraph 3.37 above, the sampling has to be done over different specifications of each commodity. It is common knowledge that the target population might be consuming different varieties of each article. To illustrate, different varieties of rice say, coarse, medium, fine, superfine, etc. might be consumed by consumers. It is, nevertheless, neither feasible nor desirable to include all these varieties in the index. Thus, a judicious choice of the popular varieties (one or two) consumed by index population, are to be included in the index. This is done on the basis of popularity of varieties revealed by the family budget data, market intelligence, etc.

Scrutiny of Price Data

3.41 The scrutiny of price data collected is essential before the data is processed for compilation of base prices and current prices/price relatives which are needed for computation of Consumer Price Index Numbers. In the field, Price Collectors should verify the prices from customers from time to time, so as to ensure the accuracy of prices obtained. Price Supervisors should also check the veracity of the prices quoted by the Price Collectors by making spot visits frequently. The price data recorded by the Price Collectors need to be carefully scrutinized by the Price Supervisors before sending for data processing. In the Data Processing Unit, the price data should be further scrutinized and doubtful cases such as those arising from abnormal price variations between markets, between shops, over time (week to week), etc. may be referred back to the price collection agency for rectification/clarification. Special care should also be taken to ensure that the quotations from shop to shop, market to market and week to week are not subject to extraneous variations e.g. variations due to changes in quality, unit of price, etc. The prices of various commodities should also be compared with the corresponding prices of previous month. The variations of more than 10 per cent in the prices for non-seasonal items and 50 per cent in the prices for seasonal items, need verification of price data. Similarly, the variations of more than 3 points in item level index as compared to that of previous month also need thorough rechecking of price data.

Selection of Base Year

3.42 The well known criteria for the selection of base year are :- (i) a normal year i.e. a year in which there are no abnormalities in the level of production, trade and in the price level and price variations, (ii) a year for which reliable price data are available and (iii) a year as recent as possible, and comparable with other price index series released at national and state levels.

3.43 The National Statistical Commission set up by the Government of India, recommended (in 2001) that base year of a CPI series should be revised once in every five years and not later than ten years. As per International Labour Organisation's (ILO) recommendation, the family living survey or household consumer expenditure survey needs be conducted at intervals generally of not more than 10 years with a view to updating the series of price index numbers.

Computation of Index

3.44 As explained in paragraph 3.12, the index is compiled by using the Laspeyres' base weighted formula because of its inherent practical advantages. The formula in its aggregative form is expressed as below:-

$$I_n = \frac{\Sigma q_o p_n}{\Sigma q_o p_o} \times 100 \quad \text{---------- (1)}$$

The operational form of the formula obtained by adjusting the numerator $\Sigma q_o p_n$ as $\Sigma q_o p_o X\ p_n / p_o$ which is simply an alternative algebraic expression without changing its significance or value, is given as:-

$$I_n = \frac{\Sigma q_o p_o X (p_n / p_o)}{\Sigma q_o p_o} X\ 100 \quad \text{----------(2)}$$

where the expression $q_o p_o$ denotes the base-period expenditure on an item (featuring in the index–basket built up on the consumption pattern in the base period) and is termed as weight, and the expression p_n / p_o is called the price relative (PR) which is the ratio of the price of an item in the current period to its price in the base period. Thus, the expression (2) shows that the Laspeyres' index is a base–weighted average of price relatives, the weights being the expenditures incurred on various goods and services featuring in the base–period consumption basket of the concerned population group. The practical advantage of this formula is clear. If we calculate the base–period expenditures which are the weights, once for all on the basis of a family budget enquiry, it only remains to compile periodically the Consumer Price Index Numbers on the basis of price data collected for the various items in the index–basket regularly. The system of base period expenditure weights relating to an index series is known as 'weighting pattern' or 'weighing diagram'.

3.45 The index is compiled at sub-group and group levels and general index (all groups combined) is also compiled for each geographical area (centre).

Housing

3.46 Housing forms an important component of the CPI in all the countries as substantial portion of income of the household is spent on housing and it is one of the basic necessities of the population. Some countries consider expenditure on acquisition of dwelling units as capital outlays and some others as consumption expenditure. Accordingly , housing services particularly those derived from self occupied dwellings are treated differently in different countries. Because of this very reason, the Seventeenth International Conference of the Labour Statisticians held in November-December ,2003 at Geneva recommended that countries should compile CPIs excluding housing and financial services to afford meaningful inter - country comparisons of CPIs.

3.47 In India, acquisition of a house is treated as capital expenditure. As such expenditure incurred on purchase of a house is not taken into account as consumption expenditure for purpose of weighting diagram. However, the expenditure incurred on payment of rent including minor repairs, if incurred by the tenant, is accounted for construction of weighting diagram. Further, data on house rent is also collected regularly for compilation of index. Sample dwelling units for collection of house rent data are of three types: (i) rented dwellings, (ii) dwellings supplied by employers under various labour or other acts completely free ,and (iii) self occupied. The dwellings which are provided by employers for which house rent allowance is not allowed in addition to license fee charged by the employer, also come under the category of rented dwellings. Earlier Government used to charge 10% of the basic pay as the license fee besides the house rent allowance which used to be a fixed percentage of again the basic pay. Thus, the rent of such accommodation depended on the basic pay of the employee occupying the dwelling. Though the license fee has now been standardised for different categories of accommodation, house rent allowance still depends on the basic pay. In other words rent on such accommodation will undergo a change in the event of change in the occupier. This change in rent could be upwards or downwards with no relation to the market situation. The housing index and resultant general index gets affected by this. This fact may be kept in view while interpreting the housing index and resultant general index when sample of dwellings selected for collection of regular house rent data consists of such dwellings.

3.48 The Index Review Committee constituted by the GOI in 1980 observed that the fixed basket theory did not hold good for house rent index .The quality of existing houses underwent

change even if regular repairs and maintenance were carried out .Further if large proportion of working class population started residing in newly constructed (after Income Expenditure Survey) colonies, house rent paid by them should be combined with the rent paid by the families residing in old houses to arrive at overall average rent paid by the index population. For combining two components of rent, relative proportion of working class families living in new and old houses should be used as weights. Special house rent surveys should be carried out in each centre in a phased manner to estimate these proportions. However, due to various administrative reasons this could not be implemented

Owner–Occupied Housing

3.49 Owner or self–occupied housing is one of the more difficult areas in the compilation of CPI. Depending upon the definition underlying CPI, there are four ways of treating owner occupied housing.

Consumption Basis

(i) The Rental Equivalent Approach:-Following this approach consumption of services from owner occupied housing is covered in the index and price should be imputed by the opportunity cost in terms of rental value of comparable rented dwellings. The purchase of dwellings is regarded as an investment and excluded from the index. Other capital costs like major repairs, extension and conversions, insurance, transaction cost etc should also be excluded. In some countries/locations, private rental market may be very small as compared to self owned dwellings. It may be difficult to obtain comparable dwellings in terms of size, quality; location age etc.It may also be argued that the rented dwelling does not afford the same level of satisfaction as the owned dwelling.

(ii)The User Cost Approach:-In this approach the actual consumption of the service of the dwelling is included in the CPI and priced by the estimated cost of using an owner –occupied dwelling. Purchase of a dwelling is regarded as an investment and as such excluded from the index. Other capital costs are also excluded from the index.

For estimating the cost of the housing services under this approach following information will be necessary:-

- House price /mortgage balance owed
- Mortgage interest rate
- Depreciation
- Capital gain/loss
- Opportunity cost
- Minor repairs and Maintenance

Expenditure Approach

(iii) Net Acquisition Approach It is straight forward in concept and implies that the purchase of owner occupied dwellings is treated in the same way as the purchase of other major consumer durables. Thus full price of the dwelling is included in the index at the time of purchase or acquisition regardless of when consumption is taking place.

In the net acquisition approach, the following expenditure should be covered:

- Net acquisition of dwellings
- Conversion and extension of dwelling
- Insurance of dwelling
- Transaction cost
- Minor and major repair and maintenance
-

Net acquisition of dwelling can take place in following ways:

- The household builds its own house (self builders)
- The household purchases a new house directly from a building company.

- The household purchases a new house from an estate agent.
- The household purchases a existing dwelling from another sector.

(iv) The Payment Approach: In the payment approach actual outlays are included regardless of time when the good or the service is acquired or consumed. In principle all the payments related to the dwelling may be covered:

- Cash outlays for purchasing dwelling
- Mortgage payment
- Mortgage interest payment
- Conversion and Extension of dwelling
- Insurance of dwelling
- Transaction cost
- Repair and maintenance, minor and major

If owner occupied housing is assumed to be mainly a consumption expenditure, all payments relating to the dwelling should be covered, including actual outlays for purchasing dwellings and mortgage payments. If considered an investment expenditure, the payment made for purchase of the dwelling and all other capital related costs should be excluded. Thus only interest payments and minor repairs and maintenance are to be covered by the index.

.

Computation of House Rent Index

3.50 The change in rent and related charges which constitute a single item under housing group is captured through Repeat House Rent Surveys (RHRS) conducted in the form of six-monthly rounds. The survey is conducted on a sub-sample of dwellings covered during the family living survey/household consumer expenditure survey. The house rent index is calculated once in every six months i.e. in January and July of every year, and is kept constant for the entire six months on account of the tendency of house rent to remain more or less stable over short periods. The house rent index is compiled by chain base method and is the weighted average of rent indices of rented, rent free and self-owned (with comparable rented dwelling), the weights being proportions of three categories as revealed from the family living survey/household consumer expenditure survey with the bifurcation in the proportion of self-owned dwellings into self-owned with and without comparable rented dwellings on the basis of House Rent Survey in the base period. Since self-owned without comparable rented dwellings are replaced, its share of weight is apportioned to rented dwellings. In the computation of house rent index besides rented dwellings, self-owned dwellings and rent-free dwellings are also taken into account. The former is included with a proxy index based on the rent relatives of comparable rented dwellings with the weight in proportion to the number of self-owned dwellings, while the rent relative for rent-free dwellings is taken as 100 with the weight in proportion to the number of dwellings in this category.

Dissemination of Index

3.51 The CPI estimate should be computed and publicly released as quickly as possible, after the end of the period to which it refers, and according to a pre-announced timetable. It should be made available to all the users at the same time in a convenient form, and should be accompanied by a short methodological explanation. Rules relating to its release should be made publicly available and strictly observed.

3.52 When it is found that published index estimates have been seriously distorted because of errors or mistakes made in their compilation, corrections should be made and published. Such corrections should be made as soon as possible, after detection according to publicly available policy for correction. Where the CPI is widely used for adjustment purposes for wages and contracts, retrospective revision should be avoided to the extent possible.

3.53 The publication of the CPI results should show the indices for last few months say, 5 months, from the index reference period. It is also useful to present derived indices, such as the one that shows changes in the major aggregates between: (i) the current month and the previous month, (ii) the current month and the corresponding month of the previous year, and (iii) the average of the previous 12 months. The indices should be presented in both seasonally adjusted and unadjusted terms, if seasonally adjusted data are available.

3.54 The website for the index if any, should also be updated on the day of its release. If feasible, a six-monthly or a yearly Brochure/Report giving indices at sub-group and group level, and financial and calendar year averages of the index for say, last 10 years should also be published. Besides the general index, the index should also be released at sub-group and group levels. A combined index for three important groups viz. (i) Food, Beverages and Tobacco, (ii) Clothing, Bedding and Footwear and (iii) Housing should also be published.

Problems of Index Compilation

Treatment of Missing Items

3.55 The problem of maintaining fixity of specifications selected for pricing at the start of the price collection work, is perhaps the most difficult one and has to be constantly tackled during the life of any Consumer Price Index series. Yet the problem is inescapable because market conditions and people's tastes and preferences are dynamic factors in any economy while the consumption basket of a Consumer Price Index is supposed to be kept static throughout the life of the series. Of course, if the non-availability of any commodity is a temporary phase of very short duration, it is customary to compile the index by repeating the last available average price of the commodity as it can be taken as a reasonable estimate of the current price. In the current series of Consumer Price Index Numbers for Urban Non-Manual Employees and Consumer Price Index Numbers for Industrial Workers released at national level, such repetitions of prices are made, whenever necessary, normally up to a period not exceeding three consecutive months. Repetitions over longer period are not desirable as they induce a static condition in the index which may not be in keeping with reality. Hence, when a specified variety of an article disappears from the market for a considerable period or even permanently, it is necessary to price a suitable substitute which is equally popular among the target population. It has to be ensured that as a result of the substitution no spurious element of price change is introduced in the index. It is for this reason that preference is given to choosing a comparable substitute. If a comparable substitute is not available in the sampled outlets, other outlets in the market will have to be tapped and the decision to price a non-comparable substitute is taken only when it transpires that no comparable substitute can be had from any outlet in the whole market. In the event of choosing a non-comparable substitute, its price will have to be adjusted suitably to eliminate the effect of difference in quality in relation to the original specification. For this, one method is to collect prices of various (say, two to four) varieties of a quality range next to that which is substituted, in addition to prices for substitute varieties for the current month as well as for the preceding month from selected shop. This will enable to estimate the real percentage variation in price due to price change on the basis of price trends observed in the market between the two successive months for several varieties of nearly comparable qualities. It may, however, so happen that more than two varieties in a quality range of the substitute variety are not available in the market during the two successive months for which prices are required to estimate the real price change over the two months. In that case, an attempt is made to estimate the real price change by comparing the prices of the substituted variety and the originally quoted variety which had disappeared from the market just preceding the month when substitution is effected. Thus, in the case of the former method an attempt is made to estimate real price change by sampling a number of varieties within a narrow quality range, whereas in the latter by sampling over time. The third method is to ascertain through enquiries from the knowledgeable shopkeepers as to what is the extent of priceable change due to quality change between the prices of the substituted and the substitute varieties. Since this method would mainly rely on the informed judgment of experienced shopkeepers, it is adopted only as a last resort when it is not possible to adopt the other two methods described above. These artifices have, of course, their own limitations but are nevertheless very useful and dependable in practical situations. When no such estimation is at all

possible in a particular situation, it is assumed that the entire price difference is due to quality difference and the price of the substitute (during the period when price of the original was last available) is supplied on (or linked) to the last available price of the original. This splicing (or linking) consists in arriving at a ratio between the two prices (price of original divided by the price of the substitute at a concurrent point of time) and multiplying all future prices of the substitute by this ratio to get the adjusted price corresponding to the quality of the original specification. The adjustment is made through the process of splicing as follows.

$$P_n = P_{n-1} \times \frac{P'_n}{P'_{n-1}}$$

where P_n is the estimated price of particular original variety in the current week when the same was not available in the market, and P'_n is the price of substituted variety in current week, P_{n-1} is the price of original and P'_{n-1} of the substituted variety in the previous week.

3.56 Thus, the price-trend of the substitute will be represented in the index after splicing without causing any abrupt change or aberration in the index on account of substitution. The only other theoretical condition to be fulfilled in any substitution is that it should be possible to consider the price-trends of the substitute as representative of the price-movements of the original.

Quality Change

Seasonality

3.57 Another problem that has to be faced by index-makers is that of seasonality. In Consumer Price Indices this factor mostly affects in a large way, the food group in general, and the vegetables and fruits sub-groups in particular. In fact, the seasonality in the case of cereals is not so acute problem because, these being consumed throughout the year, there is no difficulty in the continuity of prices except during the transition stage when a new crop replaces the old one. During this stage two sets of prices may be available, one for the old and another for the new crop product. The new crop product is generally cheaper but it cannot be taken as strictly comparable to the old crop product because it has a markedly different taste and consequently, it could be considered as affording different consumer satisfaction. After sometime, the old crop will become very costly and eventually disappear from the market and at this stage the price of the new crop which would have been increasing gradually, would have acquired some degree of stability. Thus, in transitory period two sets of price quotations for (i) old variety and (ii) new variety may be collected and used for index compilation. The complete switch over to the prices of the new variety can be conveniently affected when the old variety loses its popularity in preference to the new one.

3.58 The problem, however, is quite different in the case of seasonal fruits and vegetables. The appearance and disappearance of some of these during short seasonal period may cause radical changes in the consumption pattern so far as the food group is concerned, and would have substantial effect on the General Index. For instance, in some areas in the country significant reduction in expenditure on cereals, etc. is noticed during the peak of the mango season which is usually in June. This change may not be uniform from year to year because its extent would also depend on the abundance or otherwise on the mango crop production in a particular year. Similarly, fresh vegetables are cheaper during the peak of the season and consumers divert their expenditure from other items to some extent, for buying the seasonal stuff. Thus, the seasonal items like vegetables and fruits induce two kinds of disturbances in the index, viz. their price fluctuation is considerable on account of seasonality i.e. the range of variation in the prices as between off season and peak season are quite high, and owing to the large price fluctuation and the general preference of consumers for the particular seasonal vegetables and fruits, a sort of seasonal cycle in the consumption of other food items like cereals, etc. is observed.

3.59 Added to this, not all the vegetables and fruits are available in any region, throughout the year. In the off-season some of the items may not be available at all as a result of which it may not be possible to include them in a fixed basket for index purposes throughout the year. This problem compelled the index makers to include only such perennial items of fruits and vegetables

(potato, onion, etc.) as these are conveniently priced throughout the year. But in order to give adequate representation to seasonal items in the index it might be expedient to have varying seasonal weights (month by month or for groups of months constituting different seasons) based on monthly consumption data, within the vegetables and fruit sub-groups. The weights of vegetables and fruits sub-groups as a whole are kept constant by basing it on the annual average budget thrown up by the family budget enquiry.

3.60 Due to the wide range of variation in the prices for a seasonal item, between the off-season and the peak season, a cycle in the month to month price comparisons with a fixed base price (annual average price for the base period) which counteracts the cycle generated by varying weights, is induced. Hence, it is considered proper to compare a current month's average price for an item with the average price for the corresponding month of the base period instead of with the annual average price for the entire base-period. However, this procedure of working out `seasonally adjusted' price relatives vitiates the month-to-month link between successive monthly indices for these sub-groups. The index for say, January of any year is based on the base-prices relating only to the month of January of the base year. Similarly, in the case of February index it cannot, therefore, be said that the index for February has risen or fallen by so many points over that for January, because the comparisons relate to different base-periods in each case. In view of this difficulty the question was reviewed by the Technical Advisory Committee on Statistics of Prices and Cost of Living in July, 1966 and it was decided to revert to the traditional method of comparing the current prices with the average prices of the base year instead of with monthly varying base prices. It was also felt that the monthly varying weights based on monthly expenditure figures, specially tabulated from the family living survey data, were also subject to large sampling fluctuations on account of small size. Hence, it was decided to recast the weighting diagram for the seasonal sub-groups of vegetables and fruits on the basis of annual average expenditure data as in the case of other groups/sub-groups. In doing this, the monthly seasonal baskets are, however, retained as before, and the average expenditure on the items which are dormant due to off-season, are imputed at the sub-group level.

Quality Adjustment

3.61 The basic principle for quality adjustment in the prices of a substitute variety is the same for all CPIs. However, there is difference in approach adopted for making quality adjustment in compilation of different CPIs released at national level viz. CPI(IW), CPI(UNME) and CPI(AL)/CPI(RL) in view of difference in number of price quotations allotted, number of outlets/shops selected/available in the centres/villages covered, etc. The procedure for making quality adjustment in the prices in these CPIs is explained separately under the relevant CPIs**.**

3.62 In case of non-availability of specified/prescribed variety in the selected/reserved shop, efforts are made to collect the same from any shop of the market. When a prescribed quality (grade and variety) of an item is not available in saleable quantity in the entire market, the situation calls for substitution, which may be of two types:-

3.63 Comparable Substitute: In such cases a comparable variety of the item which is equivalent or comparable in quality to the prescribed one, is selected and prices are quoted/collected for this substitute on a continuing basis. For judging the comparability the following points are taken into account.

Manufacturing process
Similarity of want/usage
Quality
Quantity/Unit
Price trend as a last resort

If the new variety selected as a substitute of the old/defunct variety is judged as comparable then no adjustment in price is resorted to. In such situation price reported by the Price Collector are directly utilized for index compilation.

3.64 Non-Comparable Substitute: When no substitute which is equivalent or comparable in variety, is available but a substitute with some difference in quality yet popular among the working class population is available. In this situation the Price Collectors are asked to collect and report the prices of this non-comparable variety in place of the original one. The prices of the non-comparable substitute variety are used following a method known as 'splicing' or 'linking'. For this, the prices for new variety for earlier period is also collected so that they can be linked/spliced to that of the defunct variety at common point of time. To illustrate, if the prices of the new (substitute) and old varieties are say Rs.3.50 and Rs.4.50 respectively at a common point of time, the prices of the substitute variety would be adjusted by multiplying by the factor 4.5/3.5 before using the same for index calculation. This method assumes that the prices of the defunct variety, had it continued to exist, would be following an identical trend as that of the substitute variety.

3.65 The price adjustment is also done in case of change in the unit or content or dimension of the priced item. If however, the original quality reappears in the market after some period it is priced again on continuous basis.

3.66 When no other variety of the item, comparable or non-comparable with the prescribed quality is available, this indicates that the item has disappeared from the market and has no use for the consumers; it is dropped from the index and its weight is imputed and the weights for other items are suitably re-adjusted.

Rationing

3.67 Rationing of essential articles, especially food grains, also poses a problem to the index-compilers. When the rationing is complete and the rations supplied meet more or less the full requirements of an average family as revealed by the family budget enquiry which forms the basis of weighting pattern of a particular series of index numbers, there is no difficulty because the controlled prices could be directly taken in the index calculations.

3.68 Even when the ration supplies do not meet the full requirements of an average family (as revealed by the family budget enquiry), there is no other alternative but to accept the ration prices only for the index compilation. This is because in a statutory rationed area open market sale of a particular item covered under the scheme is prohibited by a Government order and there would not be congnisable sale in open market. Whatever transactions might take place behind the doors, would be illegal transactions and a reliable open market price would not be available.

3.69 When there is partial rationing of any commodity, it would be available both in controlled shops (or fair price shops as they are sometimes called) and in the open market. In such case it becomes necessary to work out a weighted average of the open market price and the controlled or fair price, the weights being the relative supplies (of the commodity in question) to the concerned population group from the two sources viz. open market and fair price shops. When the quantum of supply in the controlled shops is such that it meets only a part of the requirements of the consumers (as estimated from the family budget enquiry data), it could be presumed that the balance of the requirements would be purchased from the open market. Thus, an estimate of the supply ratio between controlled shops and the open market can be arrived at. Of course, this estimate would depend on the validity of the assumption that the consumers draw their full rations from the controlled shops during the period for which the ratio is estimated. In practice, this assumption can reasonably be made when the controlled prices are considerably lower than the open market price (due to Government subsidy, etc.) and the quality difference is not significant. The following example would serve as an illustration:-

We know from the family budget enquiry (a) the average family size and (b) the average quantity of a particular item consumed by a family. Let these be denoted by F_o and Q_o respectively.

We also know the quantity supplied through ration shop in a current period. Let it be denoted by Q_1 per head.

Then the total quantity of that item admissible to F_o members of a family would be $F_o \times Q_1 = X$.

The supply ratio for combining open market and fair prices of the item would, therefore, be $(Q_o - X) : X : : O. M : F. P.$

The open market prices and fair prices when combined in these ratios would, therefore, determine what can be termed as a 'consumer price' for that item paid by an average family during the current period.

In the current series of Consumer Price Index Numbers for Urban Non-Manual Employees compiled at national level, the data on off take are collected periodically from the sample of families canvassed for house rent enquiry, for working out off take weights in respect of sources of purchase, as regards the selected commodities such as rice, wheat, sugar and kerosene; whose supply/prices in the open market are regulated by means of fair price shops and consumer co-operative stores.

3.70 Another important problem associated with rationing situation, which index compilers have to tackle, is of quality difference in between the items supplied through fair price shops and priced basically. More often than not, the quality made available from fair price shops, is at variance with the quality priced for index compilation. The fair price quality depends, among other things, on procurement and import policy of the Government. That being so, it is difficult to maintain quality equivalence which is the deficiency of an index compiled through Laspeyres' formula. Nevertheless, in so far as ration supplies are concerned, the price quotations have to be utilized by ignoring quality variation, as fair price supply is made primarily with a view to ameliorating index population's hardships during scarcity conditions. In such a situation the consumer is inclined to buy fair price supplies at rates which are normally much lower than the open market rates unmindful of quality consideration. Hence, the difference in price which may be partly due to difference in quality might well be considered as price change and not as a payment for higher/lower quality, even if there may be utility differential. Moreover, at any particular point of time, more than one variety of an item may be available at ration shops/fair price shops and the consumer might be lifting all such varieties for their consumption. In such a situation it becomes imperative to use prices of all such varieties which may be sold from the selected ration shops/fair price shops. For representing prices of all such varieties appropriately a weighted average of fair prices is taken where weights adopted are the total quantities of various varieties supplied to the selected ration/fair price shops in a particular month.

3.71 While utilising fair prices for compilation of Consumer Price Index Numbers, one more fact has to be borne in mind and that is whether or not the fair prices are less than the open market prices. If open market prices are less than the fair prices for all varieties sold in the fair price shops, then open market prices alone are utilized for index compilation. Because under such a situation consumers will normally not buy their requirements from fair price shops.

3.72 The guiding principle in regard to the problem of multiple sources of supply in respect of any commodity, is to determine the 'average price' as paid by the concerned population group during any period, for which it is necessary to estimate the relative supply from the different sources from time to time. Otherwise, the index cannot be kept realistic. It also follows automatically that no source of supply is to be ignored for collection of prices unless there is reliable indication to the effect that the concerned population group does not significantly patronize the source in question.

House Rent

3.73 The problem of substitution has to be approached in a slightly different manner in the case of pricing house rent. The changes in house rent are measured by comparing the average or total rents of a fixed set of dwellings at the current and base periods. If this comparison has to be made with the base period every time (as in the case of other items), some difficulties might arise due to substitution of some of the dwellings. It is rather improbable that all the sample dwellings would remain either occupied or be in the same condition during every successive period of collection of rent data. Further, some dwellings which were occupied by households belonging to target population, may now be resided by other households not belonging to the target population leading to reduction in sample size. Dwellings might become vacant, others might get demolished

after some time or get altered in some other way and thereby, an element of change in quality would creep in. Hence, substitutions may have to be made more frequently in collecting house rent data from the original sampling frame. However, these substitutions at a later stage would certainly vitiate comparability with the original base-period sample. For this reason, the house rent indices are generally built up on 'chain-base'. This involves matching the sample dwellings in two consecutive time-periods and comparing the average/total rents of the 'matched' sets of dwellings and linking or chaining this ratio to the index for the preceding period of time to obtain the index for the current period. In other words, short-term comparisons or 'relatives' are calculated in respect of 'matched samples' and then successively chained. Such indexes are known as chain indexes and enjoy the advantage of greater resilience in the matter of introduction of quality changes through substitutions, but in the long run they tend to accumulate bias which renders them incapable of satisfying the circular test for index numbers which required that index numbers should return to the original level when prices return to the original level.

Clothing Items

3.74 The pricing of clothing articles presents some operational difficulties. Owing to the very large number of varieties of cloth that are available in the markets in a wide range of quality, and also the changes in brands, etc. the task of collecting prices on a continuing basis, for fixed specifications laid down for the purpose, becomes difficult. This leads to frequent substitutions which, however, carefully made, tend to introduce intractable spurious changes in price due to extraneous factors like quality difference, etc. The Expert Committee appointed by the Government of Maharashtra, recommended a method known as the 'census method', for tackling the problem efficiently. This method broadly consists in selecting a large number of currently popular varieties of a particular item of cloth, in a narrow quality range and collecting prices for all varieties. For averaging prices and price relatives following two methods of using the information so collected were recommended:

Taking the median of all the prices collected as the price of that particular item of cloth, and

Taking the average of price relatives of common sub-varieties for every two consecutive months and constructing the item index by chain method.

However, this method also suffers from its own limitations as it exhausts the patience of the informant. The shop-keepers are not prepared to give the detailed information on all the varieties stocked by them, every week as is envisaged in the method.

3.75 For the series of Consumer Price Index for Industrial Workers compiled at national level, the prices of clothing items are collected from Mill Retail Shops wherever such shops are functioning and are popular among the index population. An empirical study undertaken demonstrates, beyond doubt, that even if prices of clothing items are collected only once a month instead of weekly collection of prices, the efficiency of the index would not be sacrificed.

Linking of Two series of Consumer Price Index Numbers

3.76 When a series of Consumer Price Index Numbers becomes outdated and is replaced by a new series based on fresh family budget enquiry, the publication of the old series is normally discontinued with the commencement of the publication of the new series, as the parallel existence of two series for the same population group and area, is likely to cause confusion in the public mind. But because of the prevailing wage awards etc. many of the users of the earlier index series may continue to require the index figures in the old series at least for some time longer until necessary steps to link wages directly with the new index series, are complete. Hence, it becomes necessary to make available to the public figures of the old series also for some time. In such a situation some device has to be worked out whereby figures in the old series can be estimated from the figures published in respect of the new series. This is normally achieved by splicing the old series on to the new series at a common point of time which is usually the starting point (or the base period) of the new series.

3.77 There are three commonly used methods for linking new series with earlier one i.e. (i) arithmetic conversion method, (ii) ratio method and (iii) regression method.

In arithmetic conversion method the relationship between the indices in the earlier series (y) and those in the new series (x) is assumed to be linear i.e. y = cx, where c is the linking factor given by

$$C = \frac{\bar{Y}}{\bar{X}}$$

Where, $\bar{Y}$ and $\bar{X}$ (in practice, it is 100) are the average values of the indices in the two series for the base year of the new series.

Under the ratio method, month-wise ratios of new indices and old indices are worked out first and then average of ratios is taken as a linking factor.

In the third method, the relationship is based on y = bx, where b would be so estimated that the sum of squares of deviations of the actual values of y (during the base year of the new series) from the estimated values (derived from the above equation) is minimum.

3.78 If the period of analysis is limited to the base year, all the three methods give almost identical estimates. There have been suggestions to work out linking factors taking into account indices of the entire overlapping period. The linking factor thus, derived from these three different methods, may vary and provide different estimates. Therefore, it is necessary to analyse and work out the linking factor before these are released publicly. While publishing the linking factor, the option should be left to the user to use any of these methods to suit their specific objectives.

3.79 It is, however, argued that when a Consumer Price Index series built on the Laspeyres' form is linked to another new series built on the same form, there is no continuity of the basket of goods and services priced in the two series. This is no doubt true. Some theoreticians have, therefore, recommend that when the weighting diagram of the new series is available, the index in the old series for the base period of the new series, should be calculated using the new weighting diagram and this index would provide the necessary linking factor. This, in other words, amounts to working out the Paasche's index for the old series in respect of the base period of the new series. In this case, the basket of goods and services used for the new series is linked with the earlier series to obtain the linking factor and hence, continuity of basket is established. In practice, however, when a series is revised after a long period of a decade (or more), it is not a feasible proposition to obtain prices for the base period of the earlier series for the items of goods and services chosen for the new series. It is likely that a number of items would not have featured at all in the basket of goods and services of the earlier series, in which case it would not be possible to collect back prices for them after such a long lapse of time. Some theoreticians also suggest the use of Fisher's ideal index for obtaining the linking factor, which involves the working out the Paasche's index and hence, this suggestion also engenders the same difficulty as the one recommending the use of the Paasche's index. Thus, the arithmetical ratio method (at the base period of the new series) is the best suited and operationally most convenient for the linking of two series.

3.80 However, due to administrative and certain other operational difficulties the introduction of the new series of index numbers is inordinately delayed and in the meantime the old base index is continued. In such cases a variant of linking the two series of index numbers is to equate the 12 monthly average of the two series of index numbers (old and new) upto the time when the new series of index is intended to be introduced.

Uses, Reliability and Limitations

Uses

3.81 In determining the scope of the index ,the time of recording and valuation of consumption, it is important to consider whether the purposes for which the index is used is best satisfied by defining the consumption in terms of 'acquisition, "use", or "payment'. The acquisition approach is often used when the primary purpose of the index is to serve as a macroeconomic indicator. The payment approach is often used when the primary purpose of the index is for the adjustment of compensation or income. Where the aim is to measure the cost of the living the "use" approach may be more suitable. However, under Indian conditions, for recording the consumption expenditure ,a combination of all the three approaches, namely consumption for Food group, maiden use for clothings and foot wear, and payment (expenditure)approach for durable and personal effects is employed . Consequently , the same index is used for various purposes.

3.82 Consumer Price Index Numbers are mainly used everywhere and especially in this country, for the adjustment of wages and salaries. As a matter of fact, the origin of many current Consumer Price Indices can be traced to the specific need for an indicator which would perform such a function. Thus, wages are adjusted to change in prices as reflected by the index, in order to provide for the maintenance or improvement of a given level of real wages.

3.83 The Consumer Price Index Numbers can also be used for real wage calculation, i.e. as deflators of money wages. The economic well-being of a class of population say, working class is determined largely by how much they can buy for the money wages they receive, and this is indicated by the real wage. The Eighth International Conference of Labour Statisticians defined real wages as "the goods and services which can be purchased with wages or provided as wages". Real wages can be calculated by dividing the money wages by the Consumer Price Index. So, the real wage index comes out as a quotient between the money wage index and the Consumer Price Index. It is, however, implied that the money wage index and Consumer Price Index relate to the same population group as far as possible.

3.84 Besides their use in wage adjustments and the calculation of real wages, the Consumer Price Index Numbers also serve other purposes such as price adjustments in business and individual contracts, deflation of income and value series in national accounts and price analysis. The index is widely used by Governments for formulation of general economic policy particularly with respect to wages, prices and taxation. The use of the Consumer Price Index is even reported in the matter of adjustment of the amount of alimony payments and annuities.

3.85 The Consumer Price Index is used to provide an average measure of price inflation for the household sector as a whole, for use as a macro-economic indicator. The group, sub-group and item level indices are also used to deflate components of household final consumption expenditure in the national accounts and the value of retail sales to obtain estimates of changes in their volume.

3.86 The Consumer Price Index is also used for other purposes such as monitoring the overall rate of price inflation for all sectors of the economy, adjustment of Government fees and charges, adjustment of payments in commercial contracts and formulating and assessing fiscal and monetary policies, and trade and exchange rate policies. In these cases, the Consumer Price Index is used as more appropriate measures do not exist at present or because other characteristics of the Consumer Price Index (e.g. high profile, wide acceptance, predictable publication schedule, etc.) are seen to outweigh any conceptual or technical deficiencies.

3.87 Given that the Consumer Price Index may be used for many purposes, it is unlikely that one index can perform equally satisfactorily in all applications. It may, therefore, be appropriate to construct a number of alternative price indices for specific purposes, if the requirements of the

users justify the extra expense, and each index should be properly defined and named to avoid confusion and a 'headline' Consumer Price Index measure should be explicitly identified.

3.88 Where only one Consumer Price Index is compiled, it is the main use that should determine the type of index compiled the range of goods and services covered, its geographic coverage, the households it relates to, as well as the concept of price and the formula used. If there are several major uses, it is likely that compromises may have to be made with regard to how the Consumer Price Index is constructed. Users should be informed of the compromises made and of the limitations of such an index.

Reliability

3.89 The use of the Consumer Price Index need not be limited to the sole purpose for which it has been specifically designed, it can be extended to other fields too, subject to the requirements in respect of precision, etc. The reliability of the index for the purpose of adjustments in wages of a given population group depends upon how far this group of wage-earners (to which the index is desired to be applied) is similar to the population group for which the index has been actually constructed. If the consumption pattern of a given population group is too far from that of the index population, the application of the index to the former group may not be appropriate. For instance, in case of urban wage earners and salaried employees, a single Consumer Price Index series might suffice, inspite of the existence of inter-class differences in consumption patterns. On the other hand, it would not be proper to use such an index for wage negotiation or arbitration in the case of workers far from the above group, say, mining workers or rural workers whose consumption patterns and environments may be greatly at variance with those of urban wage-earners.

3.90 The deflation of nominal wages by the Consumer Price Index provides a measure of the purchasing power of wages at constant prices. If prices rise more rapidly that wages, the commodity income (i.e. the real value of goods and services purchased with money income, also called real income) will decrease. Up to a certain point this process will not bring about significant changes in the level and pattern of consumption of the concerned population group but beyond that point there will be considerable changes in the expenditure outlays of the families/household of the concerned population group, and the market basket based on which price index series is compiled, will itself change significantly. The same is true in the opposite case when wages rise more rapidly than prices. Thus, below or above the certain limits of fall or rise in the level of real wages the comparison itself tends to become irrelevant in view of the altered market basket in the current situation. In fact, if the estimated index numbers of real wages exhibit a sharply rising or falling tendency, this in itself may be taken as an indication that the Consumer Price Index series used has outlived its utility.

Limitations

3.91 The use of sampling method(s) in the collection of price data introduces sampling errors in the compilation of the index. Hence, it is necessary to ensure the representativeness and adequacy of the samples selected at several stages with a view to minimizing these errors. This will result in greater reliability of the Consumer Price Index in its various uses and applications. While most of the uses of the Consumer Price Index mentioned above, are suggested by the basic nature of the index as a measure of changes in prices and purchasing power, one should also guard against its inappropriate use for certain other purposes. Some of the limitations of the index in this regard are briefly discussed below:-

- Under no circumstance Consumer Price Index can be used to measure changes in costs or standards of living since both are affected by many factors other that changes in prices measured by the index.

- The Consumer Price Index cannot be used to measure difference in price levels between one place and another. It measures only temporal (over time) changes in the prices of

goods and services consumed by the target population of a particular area (centre) for which the index is constructed. A higher index for one place does not, therefore, necessarily mean that prices in that place are higher than those in another place with a lower index; it merely means that prices have risen faster in one place than in the other since the respective base-periods. This would be true even if the base-periods happen to be identical. In order to measure relative price levels or even the costliness between different places, a special type of index needs to be constructed. Such indices are called spatial indices of comparative costliness.

- The movement of the Consumer Price Index cannot also be compared with the movement of Wholesale Price Index mainly because there are structural differences in the two series and moreover, the impact of wholesale price variations need not necessarily be reflected in retail prices concurrently (which alone are utilized in the compilation of Consumer Price Index Numbers).

Conclusion

3.92 A Consumer Price Index like other index numbers is a type of statistical average and as such, in its construction and use it is subject to limitations pertaining to statistical averages. Briefly, it is an estimate. The limitations on its precision arising out of use of sampling methods and the desirability of maximizing its accuracy, have already been emphasized. However, the limitations of the index have been examined by experts in economics and statistics, users of the index and various authorities including Government Committees, etc. It has been generally agreed that the Consumer Price Index, though not absolutely perfect, is a very satisfactory measure of what it sets out to measure, and that it can be used with confidence for the purposes for which it is designed.

CHAPTER IV

INDIAN SCENARIO

Consumer Price Indices Compiled at National Level

4.1 Study of changes in consumer prices, particularly with reference to specific segments of population vulnerable to price increases, have generally been of major concern to Government and other planning agencies. For this purpose, Consumer Price Index (CPI) Numbers are used as tools for measuring changes in the levels of retail prices of goods and services paid by the concerned segments of population. The Consumer Prices Index Number for a month purports to measure the change in the general level of retail prices of a fixed basket of goods and services consumed by an average family/household of a defined population group in a given city/town/area as compared to the respective level of prices of the same basket of goods and services during the base period in that city/town/area. For compilation of CPI, Industrial Workers, Agricultural Labourers and Urban Non-Manual Employees (the first two representing the bulk of manual occupations primarily depending on physical labour while the last one depending on pre-dominantly intellectual activity) are three broad segments of population which are considered to be of special significance and interest. As regards the last category viz. Urban Non-Manual Employees (also referred to as middle class population) regular compilation of CPI at national level has been undertaken by the Central Statistical Organisation (CSO) since 1961 whereas the CPI for Agricultural Labourers and CPI for Industrial Workers are being regularly compiled at national level by the Labour Bureau since September, 1964 and October, 1946 respectively. Along with CPI for Agricultural Labourers, the Labour Bureau also started compiling the CPI for Rural Labourers since November, 1995.

Consumer Price Index for Industrial Workers on Base 1982

Introduction

4.2 The compilation of index numbers in the country dates back to the period immediately following the First World War. The sharp rise in the prices focused the attention of several provincial Governments on the problem of rising cost of living. As a result, some provincial Governments started conducting family budget enquiries and compilation of Consumer Prices Index Numbers for some cities in the country. As none of these Index Numbers were satisfactory, the job of compilation of Consumer Prices Index Numbers was entrusted to the Labour Bureau, earlier known as Cost of Living Directorate, on the recommendation made by the Rau Court of Enquiry in 1943. The Labour Bureau launched family living survey during 1958-59 in 50 important industrial centres all over the country on uniform and scientific lines laid down by the Technical Advisory Committee on Cost of Living Index Numbers. Based on the results of the survey and utilizing the retail prices regularly collected from the selected markets, the Consumer Price Index Numbers for Industrial Workers on base 1960, for each of the 50 centres and all-India had been compiled and published by the Labour Bureau**.** Amongst all the available CPI series compiled at the national level, the CPI series for the industrial workers is the most popular as also talked about series, as the dearness allowance of the industrial workers as also of all salaried employees in public and private sectors, in services and trade, etc, is regulated on the basis of average all-India/centre specific CPI series for industrial workers. Even Central Pay Commissions in the past used CPI for industrial workers than the CPI series for Urban Non-_manual Employees for regulation of salaries and allowances of Central Govt. Employees including public sector employees and personnel of Armed forces.

4.3 In pursuance of the recommendation of the 25th Session of the Indian Labour Conference held in 1968, another survey was conducted in 1971 at 60 important centres with a view to updating the 1960 base CPI series but the results of this survey could not be released. A tripartite Committee on CPI Numbers constituted by the Government of India, recommended for conduct of a fresh survey for the purpose of deriving an upto date weighting diagram for building up a new series of CPI Numbers.

4.4 A family living survey yields data on different economic and sociological characteristics which go into the making of the level of living of the population group concerned, besides collection of data on income and expenditure. On the other hand, a family budget enquiry or a family income and expenditure survey yields data only on budgetary aspects of the target population. For derivation of weighting diagrams and compilation of Consumer Price Indices, the latter type of survey serves the purpose. Keeping in view the time and monetary constraints, it was decided to limit the scope of the survey to income and expenditure to update the base of CPI numbers and not to cover the level of living part which was covered in 1958-59 survey.

4.5 The International Labour Organization recommended that the family income and expenditure surveys should be conducted at intervals, generally of not more than 10 years. The National Commission on Labour also recommended that the family budget enquires which form the basis of determining the weights for an index, should be undertaken once in 10 years. In the light of these recommendations, a fresh working class family income and expenditure survey (WCFIES) was conducted in 1981-82 to provide fresh weighting diagram for compilation of a series of Consumer Price Index Numbers on a revised base. Based on the results of the survey and utilizing the retail prices regularly collected from the selected markets, the Consumer Price Index Numbers for Industrial Workers on base 1982, have been regularly compiled and published for each of the 76 centres and all-India (based on 70 centres' indices) with effect from October, 1988.

Scope and Coverage

4.6 The Committee on Consumer Price Index Numbers headed by Professor Rath recommended in 1978 that manual workers in four sectors viz. ports and docks, electricity generating and distributing establishments, public transport undertakings and railways may also be covered in the 1981-82 survey in addition to the manual workers in three sectors viz. factories, plantations and mining; covered in the 1958-59 survey. This recommendation was considered by Technical Advisory Committee on Statistics of Prices and Cost of Living (TAC on SPCL) and accepted with the modification that public transport undertakings should be taken to mean motor transport undertakings only. Accordingly, the WCFIES (1981-82) covered the manual workers in 7 sectors namely, factories, plantations, mining, railways, ports and docks, motor transport undertakings, electricity generating and distributing establishments, i.e. 4 sectors more than those covered in the 1958-59 survey which was restricted to the manual workers in factories, plantations and mining alone.

4.7 An important distinction between the coverage of two surveys conducted in 1958-59 and 1981-82, was that in the latter the workers belonging to all the seven sectors, were covered in each centre while in the former only those workers which belonged to the pre-dominant sector of employment for which the centre was selected, were covered. For WCFIES conducted in 1981-82, a working class family was defined as one (i) which was located within the centre, (ii) which had atleast one member working as manual worker in an establishment in any of the seven sectors of employment covered and (iii) which derived 50 per cent or more of its income during the calendar month preceding the day of enquiry through any manual work.

Selection of Centres

4.8 It was decided to conduct the survey in 70 centres after taking into account increase in working class population since the survey conducted in1958-59 and the resources available. Keeping in view the administrative needs for centre- specific indices and adequate representation to geographical areas and industries, the centres were selected purposively. The TAC recommended that selection of 70 centres be done on the basis of employment only in 3 sectors viz. factories, plantations and mining as suggested by the Rath Committee. The TAC also endorsed the recommendation of the Rath Committee that centre-specific employment data should be used as the basis rather than district level employment data for selection of centres. Accordingly, lists of centres having concentration of workers and total employment in the state relating to three sectors viz. factories, plantations and mining; were obtained from various State Governments. On the basis of this information, firstly, the number of centres was allocated to three sectors viz.

factories, plantations and mining; in proportion to the employment in these sectors. Secondly, the number of centres allocated to each sector, was distributed among various states on the basis of industrial employment in a state subject to a maximum of five centres per state in a sector. Lastly, actual centres were selected on the basis of the centre-specific employment in consultation with the respective State Governments. With the above criteria, 7 centres covered in 1958-59 survey, could not be selected. However, 27 new centres got selected for the 1981-82 survey. Apart from these 70 centres, the survey was also conducted in six centres i.e. Kothagudem, Himachal Pradesh, Chhindwara, Bhilwara, Tripura and Goa in order to update the base of CPI(IW) series of these centres.. In all, the 1981-82 survey covered 76 centres of which 70 centres have been included for compilation of all-India Consumer Price Index Numbers. A list of 70 centres is at Annexure I and sector-wise break-up thereof, is as under:

factory centres = 54
plantation centres = 9
mining centres = 7

Working Class Family Income and Expenditure Survey

Sampling Frame

4.9 During the preliminary enquiry, information on the concentration of working class families in each ward of the Municipal Committee in a centre was collected with a view to deciding the type of sampling method to be adopted for the main survey as also to prepare a sampling frame. The sectors for which 80 per cent or more working class families could be identified through these wards, it was decided to adopt tenement sampling method. These areas were then matched with urban frame survey (UFS) blocks of National Sample Survey Organization or census blocks.

4.10 In sectors for which 80 per cent or more working class families could not be identified through these wards on the basis of the preliminary enquiry, it was decided to adopt payroll sampling method. Since sampling was done independently in various sectors of employment covered in a centre, each sector was treated as an independent entity and therefore, sampling frame for each sector of employment was prepared separately. The geographical area of each of the selected centres to be covered in the survey, was also identified during the preliminary enquiry in consultation with the local organizations both official and non-official like the Municipal Committee or Corporation and other knowledgeable authorities.

Sample Selection

4.11 The sampling design followed for the 1981-82 survey was a stratified two-stage sampling. The first stage units being the clusters of establishments or clusters of blocks as the case may be, and the second stage units being the working class families. In the case of payroll sampling the families were approached through the workers selected. However, in case of three sectors, viz. electricity generating and distributing establishments, ports & docks and railway; a stratified unistage sampling design was followed in certain centres where the number of establishments and/or number of workers belonging to these sectors were/was small. The first stage units were selected with probability proportional to size (number of workers) with replacement and the second stage units i.e. working class families were selected in a circular systematic method. The sampling was done independently for each sector within a centre.

Tenement Sampling Method

4.12 All the blocks were classified into two groups: (i) the blocks which had the low (less than 25 per cent) concentration of working class population and (ii) the blocks which had high (25 per cent or more) concentration of working class population. The blocks with concentration 25 per cent or more, formed the stratum one and the remaining blocks stratum two. Heterogeneous clusters of two/three/four blocks were formed for each sub-sample, 12 such clusters were

selected with probability proportional to size (PPS) with replacement, the size being the total number of working class population in all the blocks forming the cluster. In each month, one such cluster was surveyed. In single Assistant Superintendent centres two independent sub-samples each of 6 clusters were selected. For each cluster, every block was given an order of visit randomly. An Assistant Superintendent in the first instance was required to list the block with the order of visit as one. If on completion of the listing of this block, it was found that the total number of working class families was equal to or more than the allocated number of families, it was not necessary to do the listing of the remaining blocks. Otherwise, the requisite number of working class families were selected by completely listing the block having the order of visit as two and so on.

Pay Roll Sampling Method

4.13 The establishments belonging to seven sectors of employment were classified into two groups. The establishments having employment of 1000 or more, formed stratum one and the remaining establishments stratum two. All the establishments in stratum one were covered if their number was 12 or less. If their number was more than 12, a sample of 12 establishments was selected for each Assistant Superintendent, (6 establishments in case of single Assistant Superintendent centres), with PPS with replacement, the size being the number of workers given in the frame. In the stratum two, internally heterogeneous clusters were formed by grouping 2, 3, 4 or 5 establishments depending on their size (number of workers employed). Attempts were made to group within a cluster the establishments which were heterogeneous as far as possible with respect to various auxiliary characters like size, type of industry, ownership type, management type, etc. In both mining and plantation sectors it was ensured as far as possible, that a cluster was composed of the units which were not very far apart. In stratum two each establishment having employment larger than the average size of the cluster, had been taken as a cluster by itself to keep the range of cluster size as small as possible. Twelve clusters per sub-sample were selected with probability proportional to size, the size being the number of workers in the cluster. Each Assistant Superintendent was required to survey one cluster per stratum within the sectors per month. The requisite number of working class families were selected by circular systematic method after visiting the establishments of the cluster, on the basis of the attendance/payrolls, etc. The selection of the working class families was made for the cluster as a whole.

Sample Size

4.14 The number of families selected in a centre for the survey was based on the variability in consumption pattern in that centre and the precision required in respect of the weights to be derived for compilation of Consumer Price Index Numbers. The manageability of the work load by the field staff was also considered while fixing the sample size. The following procedure was adopted to determine sample size for various centres covered in the survey:-

- Out of 70 centres covered in the 1981-82 survey, for each of the 56 centres common to 1971 survey, the Consumer Price Indices were worked out by using the sub-sample wise weighting diagrams derived from the data of the 1971 survey, and price data for the months of January and July of each of the years 1974 to 1978. For each set of price data the variation between the sub-sample indices provided an estimate of error, from which the co-efficient of variation (CV) was worked out for each of the 10 months under consideration The sample size for each of these 56 centres was then fixed by considering the maximum value of CV estimated for 10 months and the precision envisaged for the 1981-82 survey viz. 2 per cent. For the centres for which the maximum value of CV was more than 2 per cent, the sample size was calculated by multiplying the sample size of the 1971 survey by the ratio $(C.V.)^2 / 4$ subject to the condition that the sample size so arrived at should not be more than twice the sample size of the 1971 survey. If the maximum value of CV was 2 per cent or less for any centre, the sample size of the 1971 survey was retained for the 1981-82 survey also.
- The sample size for each of the 14 new centres was determined after taking into consideration the working class population in these centres and the variability observed at

similar/neighbouring centres. The sample sizes for additional 6 centres were also worked out on these lines.

- The minimum sample size for a centre for the 1981-82 survey was fixed at 216 for family budget enquiry and 84 for house rent survey for operational convenience. The sample sizes for other centres were adjusted to multiples of 216 and 84 respectively to achieve equitable distribution of work amongst field Investigators.
- The number of families canvassed for House Rent Survey in each centre was kept as 7 per 18 families canvassed for Family Budget Enquiry per month. This number was fixed keeping in view the work load at the level of Assistant Superintendent/Investigator. For operational convenience, a sub-sample of families covered for Family Budget Enquiry was selected for House Rent Survey. Care was, however, taken that no available sector of employment in a centre remained unrepresented in House Rent Survey.

In the 1981-82 survey a sample of 34,722 working class families was covered in 76 centres (32,616 families in 70 centres) and the sample size in different centres varied from 216 to 1,512 families. Thus, the average budget which formed the basis of the weighting diagram for all India Consumer Price Index Numbers series on base 1982, was derived from 32,616 working class families' budgets.

Period of Survey

4.15 The field work of the 1981-82 survey in various centres started in March, 1981 and completed in July, 1982. The collection of data in each centre was spread evenly over a period of one full year in order to eliminate seasonal effects.

Data Collected

4.16 Data on family budgets covered consumption expenditure over a wide range of goods and services on which the selected families incurred expenditure. Information on size of family, earnings, family income, savings and investments, etc. was also collected. Data on house rents covered various aspects of the dwellings such as type, number of rooms, facilities available, category (i.e. rented/owned/free), rent particulars, expenditure on repairs, etc. The average budget (expenditure of an average family on various goods and services) derived from the data collected through Family Budget Schedule formed the basis of the weighting pattern for each centre. Data on house rents collected through House Rent Schedule formed the basis of six-monthly Repeat House Rent Surveys. Schedules of Enquiry, one for Family Budget Enquiry and another for House Rent Enquiry designed for Family Living Survey for urban non-manual employees are annexed (Annexures II and III).

Average Budgets and its Classification

4.17 Information about the goods and services on which working class families spend their money, was provided by the family budgets collected in the course of the survey. These budgets recorded expenditures on various items of goods and services. These items of expenditures were classified as:-

Consumption expenditure
Non-consumption expenditure.

Only consumption expenditure was considered for construction of weighting diagram for Consumer Price Index Numbers. The expenditures such as savings and investments (including life insurance premium, etc.); debts repaid; interest paid, litigation and remittances; taxes (including road tax, income tax, municipal tax, etc.), subscriptions (including trade union subscription, religious expenditure, gifts and charities, fines and penalties, etc.), ceremonies, precious ornaments, land and building, livestock, provident fond contribution, chance game and lottery, revenue stamp, loans advanced, investment in shares and securities, etc. were excluded because these form part of either non-consumption expenditure or non-priceable expenditure, and it is the usual practice to represent in the index only the priceable consumption expenditure. Further,

some items of consumption expenditure could not be identified with a specific quantity (or unit) of a commodity or service and hence, these items were not amenable to pricing over time.

4.18 After exclusion of all the items of non-consumption expenditure and some unpriceable items of consumption expenditure (as stated in the preceding paragraph) from the average family budget, there remained a set of consumption expenditures each of which was represented by a price identifiable with a specific quantity of commodity or service. For the purpose of computing the index, these items of expenditure were classified into following groups:-

Food (including non-alcoholic beverages)
Pan, Supari, Tobacco and Intoxicants
Fuel and Light
Housing
Clothing, Bedding and Footwear
Miscellaneous.

4.19 In view of the large weightage (or overwhelming importance) attached to 'Food' group and the heterogeneous nature of 'Miscellaneous' group, these groups were further classified into the following sub-groups:-

Food Group
Cereals and cereals products
Pulses and pulses products
Oils and Fats
Meat, Fish and Eggs
Milk and milk products
Condiments and Spices
Vegetables and Fruits
Other Food (sugar, beverages, etc.)

Miscellaneous Group
Medical care
Education, Recreation and Amusement
Transport and Communication
Personal care and effects
Others (laundry, domestic service, etc.)

The above groups and sub-groups were formed based on the following criteria:-

There should be a broad similarity in the price trends among the items falling under each of the groups and sub-groups,

Each of the groups and sub-groups should have significant weightage in the index,

There should be adequate number of items in each of the groups and sub-groups with the exception of 'Housing' group which has only one item (house-rent)

The various groups and sub-groups should be meaningful for the purpose of expenditure.

It was decided to present separate indices in respect of each group and sub-group besides a combined index, called the general index, covering all the items.

Construction of Weighting Diagram

4.20 After the formation of groups and sub-groups, the next step was to select the items from the average budget for inclusion in the index under each of the groups and sub-groups. Only selected items were included in the index because it is neither necessary nor practicable to include all items featuring in the average budget. The items were selected according to the following criteria:-

a) All items accounting for a significant proportion of expenditure in the group or sub-group to which they belong,
b) The items selected should represent the price-trends of other items not included in the index.

In general, the items which accounted for more than 1 per cent of the expenditure in the sub-group and group and for which regular price series were available, were included. However, some

items which could not be satisfactorily priced over time, were not retained but imputed to related items such as other cereals, mixed pulses, prepared meals, dung cake, ready made garments, library charges, hostel charges, pocket expenses, etc. It will not be correct to assume that the index covers only the price movements of the items for which prices are collected, and leaves out from the account the price movements of the remaining several items not included in the index (and therefore, not priced). The price movements of the items not included in the index are represented through the included items which were assigned the weight of unpriced items (in addition to their own weights) by a process of imputation.

4.21 The weights which represent the relative importance of items in an average family budget (during base period) were derived from family budget enquiries. In fact, the weight for a given item is the average expenditure incurred by a family on this item in relation to the total expenditure on 'all items' (after the exclusion of non-consumption items). The item expenditures were expressed as percentages to the 'all items' expenditure, and these percentages were taken as weights of the items.

4.22 Both single-member and multi-member families were covered in the course of the survey as they happened to be selected in the random sample, and an average budget giving a combined expenditure pattern of these two types of families, was derived in respect of each centre from the results of the survey. This average budget (after the exclusion of non-consumption and non-priceable consumption expenditure) formed the basis of weighting diagram for each centre.

Imputation of Weights

4.23 After the exclusion of non-consumption and non-priceable consumption expenditure from the average budget, a selection of items for inclusion in the item basket was done for each centre, in view of the difficulty of pricing a large number of items on which the expenditure was incurred. But since it is essential that the index should represent the average price movements of all the items featuring in the average budget (which includes priced as well as non-priced items), the expenditure on all the non-priced items was assigned, i.e. imputed to the expenditure on priced items, in a suitable way so that the former was also represented in the index-weights.

4.24 Items featuring in the average family budget for a particular centre were classified into two categories, viz., (a) items for which price series were available and (b) those for which price series were not available. In the case of items for which price data were available but could not find a place in the index because of small weightage, imputations were done by forming suitable price families, on the basis of a close study of the price trends. On the basis of such study, the expenditure of an item not included in the index due to insignificant weight, was added either to that of an included item or to the expenditures of several priced items (in proportion to their own expenditures). On the basis of such studies, it was found necessary to include in the index a few items even with small weightage but having characteristic price trends (that is, price trends not similar to those of any of the included items either single or in combination). For items falling in the second category (items for which no price data were available) price families were formed on the basis of similarity in content and use, i.e. items made of the same basic material, items fulfilling the same want, etc. Imputations were then suitably carried out.

4.25 The imputation was done at four levels, viz. (a) item level, (b) section level, (c) sub-group level and (d) group level. Item level imputation consists of straight addition of expenditure of one or more unpriced items to a priced item within the same section. Section level imputation consists of a proportionate distribution of expenditure of one or more unpriced items over several priced items within the same section. In these cases, the unpriced items follow or are assumed to follow the combined price trend of several priced items within the same section. The remaining two levels of imputation consist of a proportionate distribution of expenditure of one or more unpriced items over all the remaining priced items included in the sub-group/group. In such cases, the excluded items can neither be taken to follow the price trend of any specific priced item of the sub-group/group, nor the combined price trend of the included items of the concerned section. The implicit assumption of imputation is that the price behaviour of the imputed item is the same

as that of the item/section/sub-group/group in which its expenditure has been imputed. Some examples of imputation are given in paragraph 3.28 of Chapter III.

4.26 When the expenditure on any item was imputed to the expenditure on another item, the former was simply added to the latter. If the expenditure was to be imputed to more that one item, it was distributed over the relevant items in proportion to their respective weights (i.e. expenditure). Thus, the final expenditure weight allocated to a priced item includes (in addition to its own weight) weights for unpriced items imputed to it wholly and also the proportionate share of weights of other unpriced items imputed to it partially at section/sub-group/group level.

4.27 After carrying out the transfers (imputations) of expenditure as discussed above, the resultant expenditure on each item within a sub-group/group was expressed as a percentage of the total expenditure on the sub-group/group giving the weight for the item within the sub-group/group. About 90 per cent of the total expenditure (average budget) was represented directly through the items included (i.e. priced).

4.28 To facilitate computation of the index at sub-group and group levels, separate sets of weights were worked out for the different stages of computation. In the case of Food and Miscellaneous groups (which have sub-groups within them), in the first stage item weights were derived to add up to 100 within each sub-group after carrying out imputation at item and section levels. In the next stage sub-group weights were derived to add up to 100 for all the sub-groups within the group, after adding the imputed expenditure at sub-group level to the total expenditure on the sub-group as taken in the earlier stage (i.e. after the lower level imputations). Finally, group weights were obtained to add up to 100 for all the groups after adding the imputed expenditure at group level to the group total.

4.29 The number of items (goods and services) for which prices have been collected regularly in various centres varies from 109 to 170. Among these there are various items for which price data are collected for more than one variety.

Collection of Price Data

4.30 Besides the weighting diagram, the important element in the construction of a CPI relates to prices in respect of individual goods and services consumed by the target population. It is necessary to collect price data first for the base period and subsequently for the current period (period for which index numbers are complied) on continuing basis, from the markets patronised by the working class population in each of the selected centres, in respect of all the items (i.e. goods and services) included in the relevant index series. Agencies for regular price collection work were set up simultaneously at the time of conducting WCFIES in various centres. Initially, the items for price collection were selected on the basis of knowledge of local consumption habits in such a way that the list of items for pricing was as exhaustive as possible, so that no item of consumption is missed which might be later found to be featuring in the average budget of the working class family derived from WCFIES. Items not featuring in the average budget or not included in the index basket after the finalisation of the weighting diagram, were naturally excluded from the list of items for pricing. For certain items which were finally selected for pricing (i.e. for inclusion in the index) on the basis of the average budget (which recorded an appreciable expenditure on such items) but had not been included in the original list of items for pricing, efforts were made to collect back prices through special arrangements (e.g. by examining the records of shopkeepers, by making market enquires, etc.).

Price Collection Machinery

4.31 The machinery for regular collection of price data in various centres consists of part-time Price Collectors as well as Supervisors who are generally the employees of the State Governments and normally belong to the Directorate/Bureau of Economics and Statistics or Labour Department .This arrangement besides being economical, guarantees participation and co-operation from the State governments in the most important statistical exercise. The Price Collectors collect through

personal visits retail prices of various commodities and services included in the relevant index, on fixed days every week (or month in respect of some commodities) from selected shops in the markets assigned to them. The price data is collected through a specially designed schedule of enquiry which is centre specific, elaborate instructions have been laid down for proper conduct of price collection work in a Manual. The price collection work is supervised by a Price Supervisor in each centre who has been entrusted with the task of guiding the Price Collectors. To facilitate the work of the Price Supervisor, suitable instructions have also been laid down in a 'Manual for Supervisors'. In most cases, the Price Supervisors are the District Statistical Officers or Assistant Labour Commissioners and they generally belong to the same departments as of the price collectors whose work they supervise. This was found necessary for effective co-ordination and efficiency of work.

Selection of Markets/Shops

4.32 For selection of markets, the representatives of employers' organizations, workers' unions and the concerned State Government officers were consulted in each centre to identify areas of concentration of working class population and retail markets catering to them. After studying the availability of various items consumed by the working class population in different markets, the requisite number of markets were selected which could represent purchases of large segment of the working class population in a centre. The number of markets vary from centre to centre depending upon its size and nature of markets. The selection of more than one market was done with a view to representing inter-market price behaviour appropriately. Whereas in a few centres only one market was selected, in Bombay as many as thirteen markets were selected for the purpose. The markets once selected have not been changed in the life of the index series to maintain comparability of price data. In each of the selected markets, two shops were selected for each item to be priced so as to represent shop-to-shop variations of the markets. Shops for price collection were chosen from the selected markets by judgment on the basis of their popularity in such a way as to maximize the coverage of transactions (purchases by working class population). In addition, two reserve shops were selected for each item so that in case prices are not available from the fixed (originally selected) shops, quotations could be obtained from the reserve shops. While selecting the shops cooperation of the shop-keepers, regular availability of stocks, predominantly retail transactions were kept in view. The shops once selected have been changed only in rare cases such as change in business by the shopkeeper, to avoid spurious variations in prices. For collecting details relating to ration items, four ration shops were selected from each market provided they were available.

4.33 The retail prices are collected for each item from two selected shops in each of the markets selected in a centre. The prices for services are collected from appropriate outlets such as laundries in respect of washing charges, hair cutting saloons for barber charges, etc. For clothing items, it was decided to select retail mills shops wherever possible, for price collection on the presumption that the price trends revealed by these shops, will represent the price trends of all the clothing items in a centre. The prices have been regularly collected from the selected shops/outlets in 261 markets in 76 centres.

Frequency of Price Collection

4.34 The items retained for pricing were grouped into three categories, on the basis of frequency of price collection namely, weekly, monthly and six-monthly. In the weekly price schedule items such as cereals, vegetables, oils, etc. of which the prices are sensitive and vary frequently, were retained. The prices for these items have been collected on specified 'price collection day' of the week in each selected market. Prices of items like cinema tickets, furniture, utensils, household appliances, transport, etc. have been collected once in a month because the prices of such items are not expected to show fluctuation over different weeks of a month. Prices of tea leaves, cigarettes, barber charges, toilet soap, clothing and footwear items have also been collected once in a month for the same reason. The prices for these items have been collected on the first price collection day of the month in each selected market. The prices of items like school/college fees, school/college books, etc. have been collected once in six months. Data on

house rent have been collected once in six months in respect of each sampled dwelling since house rents do not fluctuate frequently. In case of perishable items the prices have been collected on a fixed price collection day and time every week/month. The day for this purpose was fixed after considering extent of transactions on various days in a week and views of the State Governments. In this case it is essential to maintain the time of the price collection so that prices of items of the same quality are collected in each week.

Specifications of Items

4.35 As the Consumer Price Index, by definition, is designed to measure changes in retail prices only overtime, it is imperative to keep all other factors that may influence the prices, constant throughout the life of the index series. In particular, the qualities of items to be priced should be kept constant that is the same qualities of items should be priced from period to period, so that any aberration is not introduced in the index due to changes in qualities of the items priced. For this purpose, detailed specifications of the qualities of the items selected for pricing, were laid down in aspect of each item priced so as to help the price collection personal in correctly identifying the qualities/varieties/brands, etc. of the items priced. The specifications of items which were common for all the selected markets within a particular centre, were decided in consultation with the State Authorities after detailed local enquires about the varieties popular among the working class population, so as to avoid undue rigidity in fixing the qualities, a certain range in the quality was allowed in item specification. For each of the selected items normally one variety was selected for regular price collection on the presumption that it will reflect price trend of all the varieties of that item. For some items i.e. shirting, long cloth, etc. more than one specification was laid down in order to cover the expenditure on such items properly. As regards units of price quotations, the prices are reported in terms of prevailing units which were also fixed in consultation with State Authorities.

4.36 Retail prices used in computation of Consumer Price Index are those actually charged to the consumers and are inclusive of sales tax, excise tax, octroi tax etc. which are payable by the consumers. Prices of second hand articles, shop soiled articles, etc. sold at reduced prices are not taken into account. However, rebates and discounts allowed to all consumers are taken into account. In case an item is supplied free to entire working class population in a centre, zero price of the item is used in the index. However, if only a proportion of working class population gets an item free then its weighted price, the proportions of working class population getting the item at zero price and paying market prices as weights, is utilized in the index.

Scrutiny of Price Data

4.37 The Labour Bureau has got four Regional Offices one each at Kanpur, Ahmedabad, Madras and Kolkata headed by an Assistant Director and other supporting staff and a Sub-Regional Office at Bombay. The main function of these offices is to ensure continued accuracy of the price data. The staff posted in these Regional /Sub-Regional Offices periodically inspect the price collection work by making visits to various centres and also impart training to the price collection personnel.

4.38 In the field Price Collectors verify the prices from customers from time to time, so as to ensure the accuracy of prices obtained through shopkeepers. The price data collected by the Price Collectors are scrutinized at three different stages before being used in the index compilation.

- At the first stage, data are scrutinized by the Price Supervisors to check the veracity of the prices quoted by the Price Collectors by making spot visits from time to time. The Price Supervisors are the middle level officers of the State Governments generally working in the same department in which the Price Collectors are working.

- At the second stage, price data is scrutinized by the officers of the Labour Bureau who are posted in Regional Offices located at different parts of the country.

- At the third stage, the prices are scrutinized by the officers of the Labour Bureau Headquarters.

Special care is taken to ensure that the price quotations from shop to shop, market to market and week to week are not subject to extraneous variations e.g. variations due to changes in quality, unit of price, etc. The inconsistencies observed in the data at scrutiny stage are referred back to the price collection agency for rectification/clarification. Moreover, the prices are also adjusted for quality as well as quantity variations with reference to the specifications fixed in the base year before utilizing in the index.

Besides, in order to bring perfection in index compilation, periodical training for price collectors and price supervisors is organized at different parts of the country in which the intricacies involved in both the price collection and index compilation are deliberated in detail to them. The Labour Bureau also undertakes field inspection/price audit of each centre once in three months through the Field Officers/Supervising Officers posted at different regional offices.

4.39 The method of construction of Consumer Price Index Numbers for Industrial Workers on base 1982, is given in the following paragraphs. The methodology which is uniform for all the centres, was finalized in consultation with the Technical Advisory Committee on Statistics of Prices and Cost of Living. and the series was being compiled and released by the Labour Bureau in respect of all the 76 centres and all India (based on the indices of 70 centres) since October, 1988 to December,2005 until release of the new series on base2001..

Base Period

4.40 It requires no emphasis that a uniform base period should be adopted for all the centre-specific series so that the all-India series could be obtained directly from the centres' indices without resorting to any arithmetical shifting of base. Theoretically, the period of the family budget enquiry which yields the weighting diagram for the index, should synchronize with the base period of the index series. In practice, however, it is not feasible. The collection of price data could not be started simultaneously with the launching of the working class family income and expenditure survey. The period of the survey in various centres was March, 1981 to July, 1982. The field agency for the conduct of the survey was the National Sample Survey Organisation (NSSO) whereas the price collection work was entrusted to a separate agency namely, the part-time officials of the State Governments concerned. This was the main reason which precluded the possibility of commencing simultaneous collection of price data with the launching of the Income and Expenditure survey. In view of the factors mentioned above, and the importance of accuracy of base prices (because any error in the base prices will perpetuate inaccuracy in the series throughout its life), the TAC recommended the calendar year 1982 as the uniform base period for all the 70 centre-specific series. This means that for a centre the Consumer Price Index Number for any month measures the change in the average price level of a fixed basket of goods and services normally consumed by a working class family as compared to the average level of prices of the same basket of goods and services at the same centre during the year 1982.

Base Prices

4.41 As already mentioned, the price quotations for most of the items are obtained on weekly basis, and the quotations relate to a fixed day of the week. Since the index is calculated on a monthly basis, the weekly quotations are first averaged for the month. A pooled simple average of all the price quotations in respect of each item from all the markets in a given centre received during a month (relating to 4 or 5 weeks, as the case may be) is taken as the average price of the item for that month. Since the calendar year 1982 was taken as the base period for each of the centre-specific series, a simple arithmetic average of the monthly average prices for 12 months of the calendar year 1982, was taken as the base price for each item.

Computation of Index

4.42 The Consumer Price Index for a given centre is compiled by using the Laspeyres' base weighted formula. The formula in its aggregative form is expressed as below:-

$$I_n = \frac{\Sigma\, q_o\, p_n}{\Sigma\, q_o\, p_o} \times 100$$

where I_n is the index for a given period (current month), p_o and p_n are base and current prices respectively of an item, q_o is the quantity of that item consumed in the base period and the summation 'Σ' extends over all the items included in the index. The formula can be expressed as:-

$$I_n = \frac{\Sigma\, q_o\, p_o \times (p_n / p_o)}{\Sigma\, q_o\, p_o} \times 100$$

where the expression p_n / p_o is the price relative (PR) of a given item and $q_o p_o$ which in fact, is the expenditure on that item in the base period, comes out as the weight for the price relative (p_n / p_o) for averaging the price relatives of all the items included in the index. The price-relative for a given item is the ratio of average price of the item for the current month to the corresponding base price. For an item for which the prices are collected for more than one variety, the price-relative is first calculated separately for each variety and then a simple average of these price relatives is taken as the price-relative of the item.

4.43 The index is computed in several stages – sub-group, group and general (all groups combined). In the first stage, the price-relative of each item included in a sub-group (in case of Food and Miscellaneous groups) or group (in case of other groups except housing which comprises only one item viz. house-rent) is multiplied by its weight in the sub-group or groups as the case may be, and the sum of products for all the items is divided by the sum of their weights (which is, of course 100 as the weights have been expressed as proportionate expenditures totaling to 100). In the next stage, group indices are computed for the Food and Miscellaneous groups from their sub-group indices by multiplying the latter by their weights within the relevant groups and dividing the sum of products by the total of sub-group weights (i.e. 100 in each case). The group indices which are thus computed for a month (the current month), are finally combined into the 'general' index by using the group weights in turn. Thus, Consumer Price Index Numbers for each centre are calculated and presented (on a monthly basis) by sub-groups, groups and 'general'. All-India index is compiled on lines similar to the procedure adopted in the 1960 base series, as weighted arithmetic average of centres' indices, the weights are proportionate to aggregate estimated expenditure of working class population represented by the respective centre indices.

Computation of House Rent Index

4.44 A special feature of the series of Consumer Price Index Numbers for industrial workers is the revision of house rent index periodically for taking into account the changes in house rent. Unlike prices of other items which are collected from shops/outlets, house rents are collected from a sample of dwellings inhabited by working class families. For the series on base 1982, the data on house rent has been collected twice a year in respect of each selected dwellings, the sample of dwellings has been staggered uniformly over each half year (viz. January to June and July to December), known as a Round of the Repeat House Rent Survey. The sample dwellings were covered in each Round in the same order (month to month) so as to maintain an interval of approximately six months between two successive visits to the same dwellings. The dwellings selected for the purpose of Repeat House Rent Survey were those occupied by a sub-sample of industrial workers' families covered in the working class family income and expenditure survey (1981-82) in each centre. The sample was kept fixed subject to substitutions necessitated by casualties, etc.

4.45 The agency for collection of house rent data is the field staff of the Labour Bureau posted in its Regional Offices. For the series on base 1982, the collection of house rent data started in the half-yearly Round: January to June 1983 in all the centres. However, during this Round house rent data for the period July to December, 1982 was collected, which was taken as the base period for the house rent index. The house rent index has been calculated once in every six months i.e. in January and July of every year, and is kept constant for the entire six months on account of the tendency of house rent to remain more or less stable over short periods.

4.46 For the purpose of the house rent index, only one item namely, rent for the dwelling, is priced. Rent includes charges incurred on repairs, maintenance, etc. but excludes electricity, water and sweeper charges. However, taxes (municipal, corporation, road, etc.) payable by tenants are included in the rent. Since rent is the only item of the Housing Group, the house rent index is itself the Group Index. Unlike the indices for the other groups/sub-groups, the index is calculated on the chain base method. In this method the total rent during the current round (6 monthly period) is expressed as a percentage of total rent during the preceding round and this percentage is multiplied by the rent index of the preceding period to yield the index for the current period. This index is not the same as the price relative based on the base period because in calculating link relatives (linking current rent to rent in the preceding period), only rents from the matching dwellings (i.e. those common to the two rounds) are taken into account, and the rent relative is based on the total rent of the dwellings. The half-yearly revisions in the index have been made on the basis of the rent figure for the preceding 6 months.

4.47 For compilation of the housing index actual rents of rented houses, rents for comparable rented houses in case of owned houses have been collected through six-monthly house rent survey and rent for free houses is kept frozen at 100. Separate house rent indices are compiled for rented houses using their rent data, and owned houses using the rent data collected for comparable rented houses. In case the comparable rented houses are not available for owned houses, their index is taken to be the same as that of rented houses. These three housing indices are then combined as weighted arithmetic average using weights which are proportions of families residing in rented houses, owner occupied houses and free houses as revealed by the working class family income and expenditure survey. This combined housing index is used for compiling general index of a centre.

Seasonality

4.48 There are a number of agricultural items especially fruits and vegetables, which are seasonal in nature and they are not available for pricing throughout the year. Even if they are available in smaller quantities, their prices are very high and cannot be considered suitable for index computation. When a particular seasonal item disappears from the market and its prices are not available because of its being out of season, the weight of such item is imputed amongst the other items on pro-rata basis, within the same sub-group with the assumption that if the item was available, the prices of the item would have moved in the same proportion as the prices of the other items in the sub-group, which are available. This is equivalent to giving a greater weight to the remaining items. Alternatively, the seasonality problem can be sorted by adopting other methods like (a) prices of unavailable items can also be extrapolated forward from the period of the availability or (b) if such seasonal item has insignificant weight it can be taken out permanently from the item basket, etc.

4.49 In view of the seasonal nature of the items included in the sub-group 'Fruits and Vegetables' (under the 'Food' group), a partial departure from the fixed basket approach is adopted in selection of items for the sub-group as well as in the method of compilation of the index. The sub-group weight which was determined from the average budget, was kept fixed throughout the year but the items constituting the sub-group and weights for the individual items within the sub-group, vary from month to month within the year so as to take into account the seasonal variation in consumption and prices while calculating the monthly indices for the sub-group. The items selected for a monthly basket were those on which price data were available in that month. The availability period of various fruits and vegetables was determined after studying

their prices for two or three years from different markets of the centre. The expenditure on all other items which were not included in the monthly basket (for reasons of low weightage, etc.), was suitably imputed to all the included items within the sub-group. In this manner, the item coverage and item weights were fixed for each monthly basket and the total sub-group weight within the group was kept constant from month to month – it being the one which was derived from the average (annual) budget.

4.50 The prices for fruits and vegetables in a particular month have been collected in respect of only those items which are included in the basket for that month. The price-relatives of the items for a month have been calculated with reference to the average prices of these items for the base year. The sub-group index for each month was compiled as weighted average of price-relatives, the items changing from month to month. Thus, the method used for overcoming the problem of seasonality in fruits and vegetables, was a combination of seasonally (i.e. monthly) varying weights and unadjusted price-relatives.

Missing Quotations

4.51 As far as possible, price quotations of items included in the index are obtained from the selected shops/outlets (two per item from each market). If the prescribed grade and variety of a particular item is not available from one or both the selected shops, quotations are obtained from one or both the reserve shops in the market kept in reserve for the purpose. When the prescribed grade and variety of a particular item is not available either from the selected shops or from the reserve shops, the quotations are obtained from any other shop in the same market and these quotations are used in the index. Even after exhausting all the above sources, sometime the number of quotations (for an item) available during the month may still fall short of the normal number, either because the Price Collector has not supplied some quotations or because the latter have been rejected on scrutiny. In such a situation, the missing quotations are suitably estimated before calculating the pooled average for the month (the average monthly price of the item concerned), provided the number of quotations furnished by the price collection agency during the month, is reasonably adequate, say more than 25 per cent. Estimation is done on the basis of price trends in previous and/or succeeding weeks, other shops, markets, etc.

4.52 In the instance where the item has totally disappeared from the market i.e. no variety of the same was available anywhere in the market for part of the month, the missing quotation has not been estimated, the pooled average (monthly average price) has been calculated on the basis of the available quotations only, provided the number of such quotations was not unduly small. No estimation of the missing quotation has been done because the quotations were not available due to the non-availability of the item concerned in the entire market.

4.53 When the number of quotations obtained for an item during a month is too small i.e. below the 25 per cent limit, for any reason whatsoever, these quotations are ignored altogether as if the item is not available in any of the selected markets of the centre throughout the month. In this situation as well as in the situation when the item is totally not available in any of the markets throughout the month, the usual procedure is to repeat the average price of the item during the previous month for the current month or compile the index on the basis of available quotations in other markets of the centre, where necessary. In case of the seasonal items like fruits and vegetables, however, the available quotations in a particular month, irrespective of the number, are utilized for index compilation.

Quality Adjustment

4.54 The basic principle for quality adjustment in the prices of a substitute variety is the same for all CPIs. However, there is difference in approach adopted for making quality adjustment in compilation of different CPIs released at national level viz. CPI(IW), CPI(UNME) and CPI(AL)/CPI(RL) in view of difference in number of price quotations allotted, number of outlets/shops selected/available in the centres/villages covered, etc. The procedure for making quality adjustment in the prices in these CPIs is explained separately under the relevant CPIs**.**

4.55 In case of non-availability of specified/prescribed variety in the selected/reserved shop, efforts are made to collect the same from any shop of the market. When a prescribed quality (grade and variety) of an item is not available in saleable quantity in the entire market, the situation calls for substitution, which may be of two types:-

4.56 Comparable Substitute: In such cases a comparable variety of the item which is equivalent or comparable in quality to the prescribed one, is selected and prices are quoted/collected for this substitute on a continuing basis. For judging the comparability the following points are taken into account.

Manufacturing process
Similarity of want/usage
Quality
Quantity/Unit
Price trend as a last resort

If the new variety selected as a substitute of the old/defunct variety is judged as comparable then no adjustment in price is resorted to. In such situation price reported by the Price Collector are directly utilized for index compilation.

4.57 Non-Comparable Substitute: When no substitute which is equivalent or comparable in variety, is available but a substitute with some difference in quality yet popular among the working class population is available. In this situation the Price Collectors are asked to collect and report the prices of this non-comparable variety in place of the original one. The prices of the non-comparable substitute variety are used following a method known as 'splicing' or 'linking'. For this, the prices for new variety for earlier period is also collected so that they can be linked/spliced to that of the defunct variety at common point of time. To illustrate, if the prices of the new (substitute) and old varieties are say Rs.3.50 and Rs.4.50 respectively at a common point of time, the prices of the substitute variety would be adjusted by multiplying by the factor 4.5/3.5 before using the same for index calculation. This method assumes that the prices of the defunct variety, had it continued to exist, would be following an identical trend as that of the substitute variety.

4.58 The price adjustment is also done in case of change in the unit or content or dimension of the priced item. If however, the original quality reappears in the market after some period it is priced again on continuous basis.

4.59 When no other variety of the item, comparable or non-comparable with the prescribed quality is available, this indicates that the item has disappeared from the market and has no use for the consumers; it is dropped from the index and its weight is imputed and the weights for other items are suitably re-adjusted.

Utilisation of Fair Price Quotations

4.60 Under the Public Distribution System, Government has been supplying some of the essential items to the public at concessional rates and this facility is also available to working class population. There are two types of rationing system prevalent in the country viz. Statutory Rationing and Informal Rationing. Under Statutory Rationing, which is in vogue at Kolkata, Howrah, Asansol and Durgapur centres of West Bengal, the sale of rationed items is banned in the open market. In these cases only ration prices are utilized in the index and no account is taken of unauthorized or black market prices. However, when supply of cereals through ration shops does not meet the requirement of an average working class family, corrective action is applied which involves distributing the portion of weight of the corresponding item among all other food items on prorata basis**.** For the 1960 based series, Technical Advisory Committee on Prices and Cost of Living Index had suggested a corrective measure in case of shortfall in supply of rationed items as under; "if the shortfall in the supply of the rationed item (s) was less than 20% of the entitlement, no corrective action was required. However, if supply fell short by more than 20%, the

proportionate weight of the item to the extent of shortfall was distributed pro-rata over other items of the sub-group".

4.61 In many other centres informal rationing is in force which implies that rationed items are available freely in the open market also. In 1960 series, while combining open and controlled prices of a commodity, entire quantity admissible through the ration shops was taken as weight for the controlled price, remaining quantity (total requirement as estimated from family budget – quantity admissible through ration shops) as weight for open market prices. It was argued at times that the entire admissible quantity was not available in ration shops and as such taking weighted average with total admissible quantity for rationed price suppresses the price and hence the index. For 1982 series, it was therefore rightly decided to use only available quantity as the weight for the controlled price of a commodity.

Linking Factor

4.62 In the national level tripartite meeting of index users held on 6th October, 1988 under the Chairmanship of Union Labour Minister, the employees' representatives suggested the ratio of averages of indices of the last 12 months preceding the month of introduction of the series while the employers' representatives proposed the ratio of averages of indices for a period of 3 years for deriving the linking factors. The meeting favoured the suggestion of the employees' representatives as this was in accordance with the decision taken in the 25th Session of the Labour Conference held in April, 1968. Accordingly, the Labour Bureau worked out the linking factors for all-India as also for the common centres of 1960 base series using the indices for the period October, 1987 to September, 1988 and released the same along with the series of Consumer Price Index Numbers for Industrial Workers on base 1982.

Release of Index

4.63 According to the Annual Release Calendar (ARC) of Standard Data Dissemination System (SDDS) of the IMF, the Consumer Price Index for Industrial Workers on base 1982, in respect of 76 centres and all India (based on 70 centres' indices) for a month had been released on the last working day of the following month. The index numbers had been disseminated through Press Note, Indian Labour Journal and website of the Labour Bureau, etc. An Annual Report giving the monthly indices at group and sub-group level and all groups combined (general index) in respect of 76 centres and all-India along with yearly indices (calendar year and financial year based on 12 monthly averages) for the last ten years and a note on methodology for compilation of the index, was also brought out.

Limitations

4.64 The weights of the series on base 1982, refer to 1981-82 though the base period selected for all the centre-specific series is the calendar year 1982. However, no adjustment for the difference in price levels between the two periods (the period to which the weights refer and the base period) could be made in the weights (though this might be theoretically desirable) because necessary price data for the purpose was not available.

Consumer Price Index for Industrial Workers on Base 2001

Introduction

4.65 New series of Consumer Price Index for Industrial Workers [CPI(IW)] intends to update the base (1982) of the series of CPI(IW), based on the latest consumption pattern of the working class population. Initially, the exercise for conduct of working class family income and expenditure survey and compilation of new series was slated to start in 1991-92 in line with the ILO's recommendation that family living survey needs be conducted at intervals generally of not more than 10 years, with a view to updating the series of index numbers. However, the actual work could commence only in 1997 due to certain unavoidable administrative reasons. The National

Sample Survey Organisation conducted the field work for collecting the income and expenditure data from 78 selected centres during the period September, 1999 to August, 2000 on the behalf of Labour Bureau. Subsequently, the data collected under the survey was processed and tabulated by Regional Computer Centre, Chandigarh. Besides, the necessary action for organizing the price collection work through the officials of the State Directorates of Economics & Statistics /Labour Commissioners' Offices, was also taken by the Labour Bureau and the price quotations are being regularly collected. Based on the results of the survey, the weighting diagram in respect of each of the 78 selected centres has been derived. Using the prices being collected regularly and weighting diagrams so derived, the Labour Bureau has released the maiden index on base 2001, in respect of 78 centres and all-India with the index for the month of January, 2006 on 9th March, 2006. The salient features of the survey is detailed below.

Working Class Family Income Expenditure Survey

Selection of Centres

4.66 The number of centres to be covered under the survey was primarily decided on the basis of resources available; operational feasibility; increase in the employment of industrial workers vis-à-vis the last survey; inclusion of States/Union Territories not represented in the 1982 base series and the requirement for building up a representative all-India Consumer Price Index series. It was decided to cover 78 centres covering 55% of the total all India employment of industrial workers in the country as against 47% covered by 70 centres in the last survey. The allocation of 78 centres to various states/Union Territories was done on the basis of the following criteria:-

- In the first stage, the total number of centres i.e. 78 was allocated to (i) plantations, (ii) mining and (iii) other five sectors (viz. factories, railways, ports and docks, motor transport undertakings, electricity generating and distributing establishments) taken together roughly in proportion to their respective employment in the country. This was done to ensure that the number of plantation and mining centers covered in the last survey, are retained.
- In the second stage, the number of centres allocated to each sector was distributed among various States/Union Territories on the basis of their industrial employment subject to a maximum allotment of 5 centres per state in a sector.
- In the last stage, the actual selection of centres was done on the basis of the industrial importance of the centre in consultation with the respective State Governments.

In this manner, out of the total 78 centres 9 centres were allotted to plantation sector, 8 centres to mining sector and 61 centres to other 5 sectors. However, once a centre was selected, workers belonging to all the seven sectors were covered under the survey. All the 78 centres i.e. 64 centres common to the centres under the 1982 base series of all India Index, 5 out of 6 centres for which the Labour Bureau has maintained separate centre-wise series, and 9 new centres were included under the purview of all India Index. A list of 78 centres is at Annexure I.

Sampling Design

4.67 The sampling design adopted for the survey was a stratified two-stage sampling with clusters of blocks or establishments as the first stage units and working class families as the second stage units. However, in the case of three sectors viz. electricity generating and distributing establishments, ports and docks and railways, a stratified uni-stage sampling was followed in the centres where the number of establishments and/or workers belonging to these sectors were/was small. The first stage units were selected with probability proportional to size with replacement, the size being the number of workers and the second stage units i.e. working class families were selected in a circular systematic method. The sampling was done independently for each sector in a centre.

4.68 The working class families were approached as in 1981-82 surveys by two methods viz. Tenement Sampling and Payroll Sampling. The choice between the two methods depended upon

operational convenience. A preliminary survey was undertaken before launching the working class family income and expenditure survey, to collect information on the concentration of working class families in each ward of the Municipal Committee with a view to deciding the type of sampling to be adopted for the main survey as also to prepare a sampling frame besides delimitation of centre's boundaries, etc. The sectors for which 80 per cent or more working class families could be identified through these wards, tenement sampling was adopted, where the respondent families were identified through their tenements. For the remaining sectors, payroll sampling was adopted where the respondent families were identified through payrolls of workers maintained by the establishments.

Sample Size

4.69 The number of families covered under the survey in a centre was determined considering the variability in consumption pattern in that centre and the precision required in respect of the weights to be derived for compilation of Consumer Price Index Numbers. The manageability of the workload by the field staff was also considered while fixing the sample size for a centre. The following procedure was adopted to determine sample size for various centres selected for the survey:-

4.70 For 69 centres which are common to 1981-82 survey, sub-sample wise weighting diagrams were prepared and using the centre level price data for 36 months from January 1993 to December 1995, sub-sample wise Consumer Price Indices were compiled. For each set of price data sub-sample indices were used to work out the Co-efficient of Variation (C.V.) and the average of these 36 C.V. estimates was worked out. The sample size was then fixed for each of 69 common centres by comparing the average value of C.V. and the precision envisaged for the survey, which was 2 per cent Co-efficient of Variation. In the centres where the average C.V. worked out was more than 2 per cent, the sample size for the survey was determined by multiplying the sample size of the 1981-82 survey with the ratio (average C.V.)^2 /4 subject to the condition that the sample size so arrived at, should not be more than twice the sample size of the 1981-82 survey. If the average C.V. was 2 per cent or less for any centre, the sample size of the 1981-82 survey was retained.

4.71 For 9 new centres covered under the survey, for which past data is not available for working out the C.V., the sample size was determined after taking into consideration the working class population in these centres and the variability observed in similar/neighbouring centres.

4.72 The minimum sample size for a centre was fixed at 216 for Family Budget Survey and 84 for House Rent Survey for operational convenience. The sample size for other centres was adjusted to multiples of 216 and 84 respectively to achieve equitable distribution of work amongst field investigators. The sample size varied at different centres from 216 to 3024.

Derivation of Weighting Diagrams

4.73 The weighting diagrams for compilation of index numbers have been derived on the basis of average monthly expenditure of a family. The average budget derived from family budget enquiry consisted of all items of expenditure reported by the working class families surveyed. These items of expenditure have been classified as:-

Consumption Expenditure
Non-Consumption Expenditure
Capital Outlays

Only consumption expenditure has been considered for the purpose of weighting diagram for construction of Consumer Price Index series. Non-consumption expenditure and expenditure on capital outlays like income tax and other direct taxes, charities and gifts, interest on debts, repayment of debts, litigation expenses, life insurance premium etc. have been excluded as only the priceable consumption expenditure is represented in the index. For the purpose of calculating the index the items of consumption expenditure were classified into groups and sub-groups as

detailed in paragraph 4.18 to 4.19. The derivation of weighting diagram including imputation of weights, for each of the selected centres was carried out on the lines of the 1982 base series.

Base Period

4.74 The well-known criteria for the selection of base year are:-

- The base year should preferably synchronise with the period of the income and expenditure survey and should not be very distant from the actual period of the survey.
- Reliable price data should be available for the base year.
- The base year should be a normal year i.e. a year in which there is no abnormalities either in production of commodities or in the price level and price variations.
- The base year of the constituent centres should be uniform so that the all-India series could be obtained directly from the centres' indices without resorting to any arithmetical shifting of base.

Though the price data has been collected immediately after the setting up of the Price Collection Machinery from majority of centres, however, the prices could be stabilised from all the 78 centres only in the year 2001. Accordingly, calendar year 2001 has been taken as the common base for all the centres under the new series. Apart from the reliability of price data, selection of calendar year 2001 as the base year seems to be justified keeping other factors also into consideration. Going by the broad economic indicators the overall price behaviour across the country was more or less normal in the year 2001.

Collection of Prices, Computation of Index, etc.

4.75 All other steps regarding organisation of price collection work in 289 markets in 78 centres, compilation of base prices for each of 78 centres, etc. were taken on the lines similar to the series for CPI(IW) on base 1982. Similarly, treatment of seasonal items, fair/statutory prices and missing quotations, and quality adjustment in case of substitution, scrutiny of price data and compilation of index including housing index, for each of the 78 centres and all India are being carried out on the lines similar to the series for CPI(IW) on base 1982. The linking factor has been derived on the basis of indices pertaining to the last twelve months preceding the month of release of the new series i.e. January to December, 2005.

4.76 A technical Sub-group under the chairmanship of the D.G. & CEO, NSSO was constituted to go into all the technical details of index compilation before its release. Since the base of the weighting diagram was !999-2000 and proposed base for index series was calendar year 2001, in conformity with the ILO resolution on CPI, the Sub-group suggested to see if after price updation the weights had undergone some change . The Labour Bureau carried out the updation exercise in respect of Mumbai and Kolkata centres and reported that there was no significant shift in the weights during intervening period and hence original weights based on Income and Expenditure survey conducted during 1999-2000be used for index compilation.

4.77 Sometimes an index series is continued for a very long time using the original weights under the guise of fixed basket theory. Items whose prices move faster than average become relatively more important while those with slower than the average increase in prices become less important. Since prices and quantities are generally inversely related ,this result may not reflect reality of consumption pattern of index population. The weights should be price updated not only when weight reference period differs from the index reference period but also between major basket updates to reflect impact of the items whose prices are changing differently from average. The fixed basket approach implies that the purchasing pattern is kept constant so that the value weights must be price-updated between two revisions in order to reflect the greater impact of this group of items on the all-item index. Price –updating leaves quantities fixed and hence the it does not introduce any change in the quantities. Although the weights are expressed in terms of expenditure shares, it is not the expenditure shares that should be held constant from period to period. What should be held constant are the quantities of goods and services underpinning these expenditures.

4.78 With a view to ensure wider acceptance for the new series, the Labour Bureau organized a tripartite national level Index Users Meeting for the release of new series on 19-20 May, 2005 at Shimla under the chairmanship of Secretary, Labour. The meeting was attended by the representatives of various Trade Unions, Employer's Organisations and other State Government/Central Government representatives. As a sequel to the above meeting, another meeting was convened on 9 September, 2005 under the Chairmanship of Secretary, Labour & Employment with the representatives of the Central Trade Unions and different Central Ministries. In the meeting it was decided that three representatives each of the Central Trade Unions and Employer's Organisations would be included in the Technical Advisory Committee on Statistics of Prices and Cost of Living (TAC on SPCL) and a meeting of the TAC be held before the release of the new series. Accordingly, meeting of the TAC was held on 17 February, 2006. In the meeting it was decided that in view of improvements made in the new series as also the urgent need for an updated base, the new series of CPI (IW) on base 2001, should be released immediately. In pursuance of the decision of the TAC, the Labour Bureau after obtaining the necessary approval of the Ministry of Labour and Employment has released the maiden index on base 2001, in respect of 78 centres and all-India with the index for the month of January, 2006 on 9th March, 2006. An example, by way of illustration, of the compilation of CPI (IW) is provided in Annexure-XI.

Consumer Price Index for Urban Non-Manual Employees

Introduction

4.79 Family Budget Enquiries in respect of Central Government employees were first conducted in the country in 1945-46 by the then Government of India for the purpose of studying the conditions and levels of living of middle class population which was considered to be one of the important sections of the country's population. Since then many local surveys of similar nature were also conducted from time to time, mainly by various state Governments and in a few cases Cost of Living Index Numbers in respect of middle class population were compiled and published. The need for an all-India middle class Cost of Living Index was felt on several occasions in connection with the fixation and adjustment of the emoluments of Central Government employees. In this context, the Technical Advisory Committee on Cost of Living Index Numbers set up by the then Ministry of Labour and Employment, recommended in 1954 that family budget enquiries should be conducted to cover urban middle class population all over the country. The Wage Board for working journalists also recommended in 1957 that necessary steps should be taken to compile and publish reliable middle class Cost of Living Index Numbers to serve as a tool to settle disputes concerning wages and salaries of this section of the population. The Government of India decided to carry out an urban middle class family living survey to (a) facilitate construction of middle class Cost of Living Indices and (b) ascertain the condition and levels of living of middle class families. In response to these demands and in accordance with the decision of the Government of India, the Central Statistical Organisation (CSO) under the then Department of Statistics of the Cabinet Secretariat carried out in 1958-59 a family living survey of the urban middle class population defined as Urban Non-Manual Employees' (UNME) population in 45 selected urban centres spread throughout the country. Based on the results of the survey and utilizing the retail prices collected from selected markets/outlets patronized by this segment of population, a Cost of Living Index (now named as Consumer Price Index) on base 1960, had been compiled by the CSO since 1961.

4.80 With the passage of more than two decades since the family living survey was conducted in 1958-59, considerable changes in the economy had taken place affecting the general patterns and levels of consumption. In particular, the consumption habits of the UNME population had undergone appreciable changes on the one hand and distortions in the consumption patterns had also occurred due to radical changes in the price structure of various consumption items on the other. Moreover, several new items of consumption had also come into vogue while few old ones had disappeared altogether from consumption basket. Thus, the CPI series on base 1960, required revision to represent the true consumption patterns of the UNME population. Accordingly, a fresh family living survey (FLS) was conducted during the year 1982-83 for estimating the consumption

expenditure of UNME population. Market Survey was also carried out in 1983 in 59 selected urban centres preliminary to the collection of prices for the base year and regularly thereafter. Based on the data of the FLS (1982-83) and the retail prices being collected regularly, the Consumer Price Index (CPI) for Urban Non-Manual Employees (UNME) on base 1984-85, has been compiled and released by the CSO on monthly basis, since November, 1987.

Scope

4.81 While planning the middle class family living survey (MCFLS) 1958-59, the question of definition of middle class population on the basis of two alternative criteria viz. income and occupation, was considered. Since a precise definition on the basis of income involved many conceptual problems, a working definition based on occupational criterion for delimitation of the population keeping in view the actual need for a CPI for this segment, was preferred. Accordingly, the categories of self-employed workers and manual workers in registered factories, mines, plantations and small scale industries were excluded from the total population since for the former no CPI was needed while for the latter, a CPI already existed. Out of the residual population, the part consisting of employees doing non-manual work outside agricultural sector in urban areas, was considered to be the most significant one for the purpose of CPI. Accordingly, a FLS was conducted during the year 1958-59 covering non-manual employees in non-agricultural sector in 45 selected urban centres spread throughout the country. However, for deriving the weighting diagram for CPI for this segment of population, it was considered advantageous to make a truncation of the population at the lower and upper ends of the income range. This truncation was affected at family income levels of Rs.100 per month at the lower and Rs.750 per month at the upper end, on the consideration that the population left outside these limits was only marginal and these limits roughly corresponded to points at which change in consumption patterns was a marked one.

4.82 Similar to the approach as mentioned above, the definition of middle class population for the FLS 1982-83 was based on occupational criterion without any restriction on coverage based on income. The question of delimitation of the population on the basis of income for derivation of weighting diagram for CPI series on base 1984-85, was considered by the Technical Advisory Committee on Statistics of Prices and Cost of Living (TAC on SPCL) and on the basis of an in-depth study of the consumption patterns over different income classes in respect of 17 centres, it was decided that there was no justification for any truncation of the population on the basis of income. Since the delimitation of the population was to be done solely on the basis of non-manual occupation in urban areas both for the purpose of family living survey and construction of CPI, it was henceforth referred to as UNME population instead of the appellation 'Middle Class' population.

Population Coverage

4.83 Although the target population was defined in terms of occupation of individuals, it was felt necessary to adopt this definition in terms of 'families' which were the meaningful statistical units of study for purpose of the survey. Accordingly, a 'UNME family' was defined as one which derived a major part of its income (50 per cent or more) from gainful employment on occupations of one or more of its members doing non-manual work in non-agricultural sector, and the FLS was designed to cover the totality of all such 'UNME families' in urban areas. The class 'UNME' was comprised of those who were gainfully occupied as employees (in government, public sector and others) doing non-manual work in the non-agricultural sector.

Selection of Centres

4.84 Keeping in view the financial resources available for the survey, it was decided that the total number of centres to be selected will not exceed 60. In selecting urban centres for the purpose of FLS 1982-83, initially an approach of combining purposive and probability methods of selection, was considered by TAC on SPCL. According to this approach, all big cities and important centres for which centre-specific indices were considered essential (namely, State Capitals and

some other centres for which CPI numbers were already being compiled and put to use), were to be included purposively and the remaining ones to be selected on a sample basis. However, considering the fact that the number of big cities (population more than 5 lakhs according to 1981 Population Census) was itself quite large and if along with these big cities all State Capitals and those centres considered important from index point of view, were to be included purposively, then there was practically no scope left for probability selection. On these considerations it was decided that all the centres for the FLS 1982-83 should be selected purposively. Accordingly, in all 59 centres were selected keeping in view the following criteria:-

concentration of UNME population in the centre
inclusion of state capital cities
regional representation.

The centres were allocated to different states broadly in proportion to their 1981 urban population with the condition that not more than 5 centres should be allotted to a state. All the 45 centres covered under the CPI series on base 1960, were retained under the coverage of the FLS 1982-83 since these centres, by and large, fulfilled the laid down criteria for selection of centres. The centres covered under the current series of CPI(UNME) on base 1984-85, are given in Annexure I.

Family Living Survey

Sample Design

4.85 The sampling design of the FLS (1982-83) was similar to that adopted in the MCFLS (1958-59). In the FLS (1982-83) the sampling unit was a UNME family defined as one which derived 50 per cent or more of its income during the reference period from gainful employment on non-manual occupations in non-agricultural sector. Keeping in view the availability of the urban frame survey (UFS) of the NSSO under which the entire urban area in a city is divided into a number of urban blocks each of about 750 population, a two-stage sampling was considered. The first stage units of selection were the UFS blocks and the second stage units were UNME families.

Sampling Frame

4.86 The list of urban blocks available from the UFS was taken up, to start with, as the frame for selection of the first stage units. This frame was, however, modified in two respects on the basis of preliminary survey carried out as a part of the planning of the main survey. Firstly, in certain centres the urban area included certain agglomeration areas outside the municipal/corporation limits as per the 1981 Population Census. Since such areas were not included in the UFS maps, were demarcated into additional urban blocks on similar lines as adopted for UFS and then included in the frame. Secondly, as per the usual practice the UFS blocks are grouped into Investigator Units. The Investigator Units were classified in terms of concentration of UNME population. The Investigator Units which had low concentration of UNME population (i.e. less than 15 per cent), were excluded from the list of urban blocks. All the UFS blocks in the remaining Investigator Units and urban blocks formed out of urban agglomeration areas having concentration of 15 per cent or more of UNME population, constituted the frame for selection of first stage units.

4.87 As regards the frame for selection of second stage units, all the families in the selected first stage units were listed through a house-to-house visit and a complete list of all the families was prepared and out of this, a short list of families qualifying for designation as UNME families, was derived on the basis of information relating to total income and income from non-manual occupations. This list served as the frame for selection of second stage units, that is, UNME families.

Sample Selection

4.88 The selection of sample was designed in the form of independent sub-samples. Selection of sampling units, both at the first stage and second stage, was done by the method of circular

systematic sampling after arranging the units at each stage according to certain criteria. The first stage units in the frame were arranged in a geographical order; the blocks within the municipal/corporation limits etc. were placed first in the list followed by blocks carved out from urban agglomeration of the centre but outside the municipal/corporation limits. From the list thus prepared, a sample in the form of sub-samples each of 24 blocks, was selected by the method of circular systematic sampling with equal probability and with an independent random start. In this manner 24 blocks were selected in a sub-sample, the total number of blocks selected in a centre, was based on the total sample size and the number of sub-samples earmarked for that centre. The sampled blocks were then grouped into 12 clusters each of two blocks by clubbing the blocks with sample serial numbers 1 and 13; 2 and 14; 3 and 15; -----, 12 and 24, with a view to ensuring representation of remote geographical areas in each cluster. Thus, 12 clusters each of 2 blocks were assigned for survey in each of 12 months (sub-rounds) of the survey period.

4.89 At the second stage of sampling, all the families in the selected clusters each of 2 blocks, assigned for survey in a month, were listed through a house-to-house visit. On the basis of preliminary information collected, those families which qualified for designation as UNME families as per the prescribed definition, were identified and then these were arranged according to three criteria as follows: firstly, the families were arranged according to two size classes viz., single member and multiple member; within each size class, the families were then arranged by two broad sectors of employment of main earner in the family as government (including public sector undertaking) and other than government. Finally, within each sector of employment, the families were arranged by three classes of total expenditure incurred during the reference month viz. below Rs.750, Rs.750 to Rs.1,499 and Rs.1,500 and above. From the list of UNME families thus prepared, a sample of 18 families in a cluster was selected by the method of circular systematic sampling with equal probability and with an independent random start, for Family Budget Enquiry. From the sample of 18 families in a cluster, a sub-sample of 7 families was also selected by the method of circular systematic sampling with equal probability and with an independent random start, for the purpose of House Rent Enquiry. Schedules of Enquiry, one for Family Budget Enquiry and another for House Rent Enquiry designed for Family Living Survey for urban non-manual employees are annexed (Annexures II and III).

Sample Size

4.90 Generally, the sample size for a centre should be determined on the basis of the margin of error in the Consumer Price Index Number for the centre that can be tolerated. This, however, requires detailed analysis of the sub-sample-wise weighting diagrams and the price relatives. In the absence of sub-sample-wise weighting diagrams, such exercise could not be done for the survey.

4.91 Studies based on consumer expenditure data of 28th round (1973-74) and consumer expenditure and employment-unemployment data of 32nd round (1977-78) of NSS, revealed that a sample size of 750 to 1000 households would be necessary for a NSS region to derive a weighting diagram of goods and services having at least 1% weight and coefficient of variation (c.v.) of 5 per cent in respect of urban non-manual employees. Since the heterogeneity in the consumption patterns within a centre is expected to be normally less than that of a NSS region, a smaller sample size for the centre should be enough for the same level of precision. In the light of the above information and taking into account the constraint on resources, the investigator strength and the workload, it was decided that a sample of 45,000 families would be covered in the survey. Depending on the size of the centre, the number of families canvassed in a centre varied from 432 to 1,728.

Method of Collection of Data

4.92 In the survey, information was collected through the method of interview under which field Investigators obtained and recorded data on household transactions during the reference period in the course of a single or repeated interviews with the sampled family. The interviews were conducted by experienced Investigators who were specially educated in the concepts,

methodology and scope of survey and also given specific on-the-job training in the collection of data on various items covered. Due to the experience and special training of the field staff not only cases of non-response were few during the enquiry but considerable success was achieved in eliciting utmost possible co-operation from the respondents in obtaining complete and reliable information.

4.93 Any information appearing prima facie doubtful in relation to the circumstances of the household such as family size, income level, regional habits etc., was probed in detail with additional questioning to establish acceptability and correctness of information. Comprehensive information coverage was also ensured by the Investigators with the help of detailed checklist of items included in the schedules of enquiry. The information collected by the Investigators was also subjected to close inspection on a sample basis by personal visits by the supervisory staff.

4.94 The data collected during the survey was further scrutinised at the pre-tabulation stage to detect any gaps, inconsistencies and also possible errors in the data reported. Attempts were also made to rectify the deficiencies, as far as possible, by getting corrections and clarifications from the field staff.

Period of Survey

4.95 The survey (FLS) was spread over a period of one year (July 1982 – June !983) and covered a sample of UNME families in each centre. A year-long survey was necessary so that seasonal patterns of consumption expenditure were adequately taken into account in the construction of weighting diagram for the series. However, it was neither feasible that the entire sample of UNME families could be surveyed in a month of the year, nor could the reliable data be obtained for the entire year from each centre at one point of time due to recall lapse. The survey period of one year was, therefore, divided into 12 sub-rounds each of one month duration and the entire sample was staggered equally over the 12 sub-rounds restricting the reference period to one month. Thus, the data collected from UNME families canvassed in each of the 12 sub-rounds and pooled together, provided the requisite data for the entire one year.

Data Collected

4.96 The main emphasis during the survey was on collection of detailed data on expenditure of the UNME families on various items of consumption and services, needed for estimation of weights to be attached to individual items of goods and services consumed, in compilation of CPI. The data collected included many items of additional information relating to demographic particulars of family members such as age, sex, marital status, educational activity and economic status, information on amount and source of income, transfer payments, savings, debts and investments, etc. These additional items though limited in scope, provided useful information on some aspects of the level of living of UNME families.

Measurement of Consumption Expenditure

4.97 In measuring consumption expenditure, the method of evaluation of 'actual consumption' was adopted mainly in the case of food, rent and fuel items. Thus, consumption, if any, out of previous stocks or the extra value on account of imputation of actual consumption from concessions received, or consumption out of inputs/outputs on family enterprise account was evaluated and accounted for. In all such cases, the valuation was done on the basis of prevailing market prices. For rent for residential accommodation, a similar imputation of value of consumption was done. In respect of the other items of consumption, payment approach was generally adopted, actual expenditure incurred during the reference month, was taken as equivalent to the value of consumption.

Average Budget and its Classification

4.98 Information about the goods and services on which the UNME families spend their money, was provided by the family budgets collected in the course of family living survey. These budgets recorded expenditures on various items of goods and services. These items of expenditures were classified as:-

Consumption expenditure

Non-consumption expenditure.

Only consumption expenditure was considered for the purpose of weighting diagram for construction of Consumer Price Index Numbers. The expenditures like transfer payments, debts repaid, savings and investments (including life insurance premium, etc.) were excluded because these form part of either non-consumption expenditure or non-priceable consumption expenditure, and it is the usual practice to represent in the index only the priceable consumption expenditure. Further, some items of consumption expenditure could not be identified with a specific quantity (or unit) of a commodity or service and hence, these were considered not amenable to pricing over time.

4.99 After exclusion of the items of non-consumption expenditure and some unpriceable items of consumption expenditure (as stated in the preceding paragraph) from the average family budget, there remained a set of consumption expenditures each of which was represented by a price identifiable with a specific quantity of commodity or service. For construction of the weighting diagram and compilation of index, these items of expenditures were classified into different sub-groups and groups on the basis of the purpose of expenditure and broad similarity in the price trends. In case of certain sub-groups like fruits and vegetables, further disaggregation into sections was also made. The classification of items into sub-groups and groups adopted in the current series of CPI(UNME), which corresponds to that followed in the 1960 base series, is given in Chapter III. It was decided to present separate indices for each of the groups and sub-groups besides a combined index called 'general' Index, covering all the items, as in the case of CPI(IW).

Construction of Weighting Diagram

4.100 After the formation of groups and sub-groups, the next step was to select the items from the average budget for inclusion in the index under each of the groups and sub-groups. Only selected items were included in the index because it is neither necessary nor practicable to include all items featuring in the average budget. The items were selected according to the following criteria:-

(a) restricting the items in the CPI for purpose of pricing to a manageable number
(b) availability and reporting of prices from the field
(c) Inclusion of items such as salt, tea, etc. consumed by a large number of families though having an insignificant share of expenditure.
(d) Inclusion of items accounting for a significant proportion of expenditure in the group or sub-group to which they belong
(e) The items selected should represent the price-trends of other items not included in the index.

4.101 In general, the items which accounted for more than 1 per cent of the expenditure in the sub-group and group, and for which regular price series were available, were included. It will not be correct to assume that the index covers only the price movements of the items for which prices are collected, and leaves out of the account the price movements of the remaining several items not included in the index (and therefore, not priced). The price movements of the items not included in the index are represented through the included items which were assigned the weight of unpriced items (in addition to their own weights) by a process of imputation.

4.102 The weights which represent the relative importance of items in an average family budget (during base period), were derived from the data collected through family budget enquiry. In fact,

the weight for a given item is the average expenditure incurred by an UNME family on this item in relation to the total expenditure on 'all items' (after the exclusion of non-consumption items). The item expenditures were expressed as percentages to the 'all items' expenditure and these percentages were taken as weights of the items.

Imputation of Weights

4.103 Expenditure weight of items excluded for purpose of pricing was imputed to item(s) included in the weighting diagram generally on the principle of their similarity in price trends. In cases where imputation to any specific item(s) was not considered suitable, imputation was made at section/sub-group/group levels. The imputation was done at four levels, viz. (a) item level, (b) section level, (c) sub-group level and (d) group level; as explained in paragraphs 3.28 and 3.29 of Chapter III.

Market Survey

Aim and Approach

4.104 Besides the weighting diagram, the important element in the construction of CPI relates to price data in respect of individual goods and services normally consumed by UNME families. The first basic requirement is the preparation of a fairly large and representative list of items of goods and services which go into the consumption basket of UNME population. The list of items of goods and services was prepared using the list of items included in the CPI(UNME) on base 1960, duly modified and enlarged by deletion of items which were no longer relevant for UNME population, and addition of items which had gained significance over time as revealed by information collected through family living survey and from local knowledgeable sources. Secondly, sample of outlets and specifications in respect of each of the selected items, which were representative of all purchases made by UNME population in a centre, was also required. It is essential to ensure that prices collected over different points of time relate to the same variety or specifications of item and also from the same outlet for the sake of comparability. In order to meet these requirements, a systematic approach consisting of a number of steps was adopted in the Market Survey as follow:-

- Selection of markets giving representation to the various types of markets having due regard to popularity with the UNME population. With a view to ensuring a wide coverage of markets in the selection of outlets/shops not more than one outlet was selected from a market as far as possible.
- Selection of popular outlets from selected markets as also from residential areas not covered under markets. The selection of outlets/shops was based on a suitable combination of popularity criterion and random selection.
- Determination of specifications of commodities popular among UNME population.
- Earmarking of selected specifications to selected outlets/shops to provide necessary quotations for regular price collection.

4.105 For the Market Survey, a two-fold approach was adopted to collect relevant information for markets and specifications of items viz. market level approach and consumer level approach; the former consists of enquiries from persons in official and non-official agencies like Municipal Committees, Chambers of Commerce, as also enquiries from shopkeepers, etc. by spot visit. The latter consists of collecting information from a sample of families out of families canvassed during the family living survey. Final selection of markets and determination of specifications of items were based on information pooled from the both these sources.

4.106 In the Market Survey a sample of markets and outlets in each centre was selected by a combination of purposive sampling and random sampling methods. The totality of markets, outlets/shops in each centre was classified into the following five strata:-

Stratum 1: Specialized markets
Stratum 2: General important markets

Stratum 3: Retail markets other than general important markets
Stratum 4: Wholesale-cum-retail markets
Stratum 5: Residual group consisting of stray shops or group shops located in and around residential areas.

4.107 Selection of markets for strata 1 to 4 was done from a list of eligible markets in different categories. From strata 1, 2 and 4; requisite number of markets were selected purposively on the basis of popularity of the markets among UNME population. From stratum 3, a random sample of markets was selected by circular systematic method. In the case of stratum 5, shops were selected on the basis of information collected through the family living survey.

4.108 As in the case of family living survey, the Market Survey was carried out by well-trained Investigators who, by and large, have had a good deal of experience in price collection. The work was also closely supervised to ensure that detailed instructions and procedures laid down for the Market Survey work were adhered to.

Allocation of price quotations

4.109 The number of price quotations collected for all the selected items in a centre, was fixed on the consideration of population of the centre, the resources available and work load that could be managed by an Investigator. On these considerations, 12 Open Market Quotations (OMQs) were assigned to centres having population less than 12.5 lakhs as per 1981 Population Census, such centres are designated as single- investigator centres and are 48 in number; 24 OMQs to centres having population between 12.5 to 50 lakhs, which are termed as double-investigator centres and are 8 in number, and 36 OMQs to centres with population more than 50 lakhs, these centres are termed as triple-investigator centres and are 3 in number. However, in centres which are common with the centres of 1960 base CPI series, the same numbers of quotations were continued even though these might be more than the number of quotations prescribed. With a view to reflect the importance of purchases by UNME population from Fair Price Shops (FPS) and Consumer Co-operative Stores (CCS) (including Super Bazars) in the price index, one quotation each from FPS and CCS for every 12 OMQs were also earmarked. Thus, in all 1022 price quotations for all the selected items are being collected from 59 centres in a month for the current series of CPI(UNME).

House Rent and Off-take Surveys

House Rent Survey

4.110 The purpose of house rent survey is to measure changes in the house rent paid by UNME families over different points of time in a centre. The rent data is used in compilation of house rent index as a part of general index. In order to maintain comparability over time in the house rent data, it is necessary that the house rent should be collected from the same set of rented dwellings which is representative of the rented dwellings occupied by the UNME families. For the purpose of repeat house rent survey taken up as a part of price collection for CPI, the house rent data is being collected at six-monthly intervals from a sample of UNME families canvassed during the family living survey. From the sample of 18 families in a cluster, a sub-sample of 7 families was also selected by the method of circular systematic sampling for the purpose of house rent survey. This sub-sample was drawn to give representation to dwellings with different number of living rooms. Thus, a sample of 16,800 families is also covered under repeat house rent survey in every six-months' period for collection of house rent data from 59 centres.

Off-take Survey

4.111 With the steady rise in prices and regulation in supply of commodities like sugar, wheat, rice, kerosene oil, etc. in the open market, the relative importance of these outlets in the purchases of UNME population, has been undergoing appreciable changes from time to time. In order to reflect the price movement of Fair Price Shops (FPS) and Consumer Co-operative Stores

(CCS) in the CPI, price quotations are collected from such shops and these prices are properly weighted in accordance with their importance in the over all consumer purchases. The proportions in respect of relevant commodities are worked out on six-monthly basis, through collection of data from a sample of UNME families on their off-take from open market, FPS and CCS outlets. The data required on purchases by the sampled families, are collected along with house rent data during the same visit.

Collection of Price Data

4.112 From the shops/outlets selected in the course of Market Survey regular price collection work in respect of prescribed quotations was started in all the 59 centres. The price data is being collected by the National Sample Survey Organisation (NSSO) in the Ministry of Statistics and Programme Implementation. The price quotations allotted to a centre were distributed among different weeks/Investigators to ensure proper spread of price collection work.

4.113 The retail prices for different commodity groups are collected on fixed days of the week as far as possible, so that comparison between two quotations from the same outlet is not affected by difference in the timings of data collection. In respect of six commodities namely, rice, wheat, fish, milk, transport services and tailoring charges; prices for more than one variety (of each commodity) are collected in different centres. The different varieties of these commodities were selected in a centre on the basis of relative popularity with the UNME population in that centre. The retail prices collected are those paid for actual transactions, inclusive of sales tax and such charges normally payable by the consumer, after accounting for discounts or rebates, if any, allowed.

4.114 The number of items of goods and services covered under regular price collection for the current series of CPI(UNME), vary from centre to centre. The smallest number and the largest number of items covered are 146 and 345 respectively. In single investigator centres the item coverage varies from 146 in Imphal to 269 in Jaipur; in double investigator centres, it varies from 234 in Bangalore to 289 in Ahmedabad, while in triple investigator centres the coverage is 257 in Bombay, 240 in Calcutta and 345 in Delhi. As compared to the 1960 based series, the item coverage in the current series is more in all the common centres.

Scrutiny of Price Data

4.115 The Field Operations Division (FOD) of NSSO has a dedicated workforce of 70 Investigators to collect price data on full time basis. Like other field surveys undertaken by FOD, there is a built-in mechanism for ensuring the quality of price data collected for CPI(UNME). This includes regular supervision of field work and desk scrutiny of the filled-in schedules. The work of each primary worker (Investigator) is inspected every week by his supervisory officer and on a reduced scale by next higher authorities. Cent percent desk scrutiny of filled-in schedules is undertaken and all discrepancies are sorted out before the same are dispatched to the CSO. After data entry, computer scrutiny is undertaken by the Computer Centre, Ministry of Statistics and Programme Implementation and error list is generated for each non-seasonal item showing price variation of more than 10% as compared to the corresponding previous month price, and seasonal item showing price variation of more than 50%. All such cases of abnormal price variations are subjected to closer scrutiny and verification in the CSO. Similar error list is also generated wherever item level index has registered a rise/fall by 3 point or more. Whenever necessary, clarifications are obtained from the concerned field offices.

4.116 The method of construction of the current series of index numbers based on the above surveys is given in the following paragraphs. The methodology which is uniform for all the centres was finalized in consultation with the Technical Advisory Committee on Statistics of Prices and Cost of Living (TAC on SPCL) and the series is being presently compiled in respect of 59 urban centres and all India.

Base Period

4.117 As stated in paragraph 4.40 of Chapter IV that a uniform base period should be adopted for all the centre-specific series so that the all-India series could be obtained directly from the centres' indices without resorting to any arithmetical shifting of base. Theoretically, the period of the family living survey which yields the weighting diagram for the index, should synchronize with the base period of the index series. In practice, however, it is not feasible. As the Market Survey for selection of outlets/shops and specifications of commodities for collection of price data was conducted during the year 1983, regular price collection work from the selected shops/outlets in respect of specified quotations was started thereafter. The price data from all the 59 centres was available from April, 1984 onwards. The year April, 1984 to March, 1985 which is closer to the year 1982-83 i.e. the period of the family living survey, was taken as the uniform base period for all the 59 centre-specific index series. This means that for a centre the Consumer Price Index Number for any month measures the change in the average price level of a fixed basket of goods and services normally consumed by an UNME family as compared to the average level of prices of the same basket of goods and services during the year 1984-85.

Processing of Data

4.118 The price quotations received from the NSSO field offices are coded at the CSO. These schedules are then sent to the Computer Centre, Ministry of Statistics and Programme Implementation where computer-oriented data processing is carried out. The CSO coordinates and reconciles/rectifies the errors detected through validation checks on the data. After reconciliation of errors, the Computer Centre generates trial indices for scrutiny by the CSO. On clearance from the CSO, the all-India as also centre-wise index numbers are generated by the Computer Centre; which in turn are released by the CSO.

Base Prices

4.119 A simple arithmetic average of prices of an item for 12 months of the year 1984-85 was taken as the base price of that item. The base price in respect of each item was worked out for each quotation in a centre.

Computation of Index

4.120 For a given centre, CPI(UNME) is worked out using the Laspeyres' formula as under:

$$\frac{\sum_{j=1}^{n} woj \left\{ \frac{1}{mj} \sum_{k=1}^{mj} \frac{pijk}{pojk} \times 100 \right\}}{\sum_{j=1}^{n} woj} \qquad \text{---------- (1)}$$

Where pojk and pijk are respectively the base and current prices relating to kth quotation (the price collected in respect of pre-determined combination of specification/outlet) of the jth commodity, mj is the number of open market quotations (OMQs) for the jth commodity, n is the total number of commodities and services included in the index and Woj is the consumption expenditure incurred on jth item in the base year including expenditure on items imputed to the jth item. The term

$$\frac{1}{mj} \left\{ \sum_{k=1}^{mj} \frac{pijk}{pojk} \times 100 \right\}$$

in the formula at (1) above, represents the item index for the jth commodity for the centre.

4.121 In addition to OMQs, quotations from Fair Price Shops (FPS) and Consumer Co-operative Stores (CCS) including Super Bazars, are also collected in respect of commodities whose supply is regulated through these outlets. In such cases, separate average price relatives for FPS and CCS are worked out and the combined item index is computed as weighted average using off-take weights for OMQ, FPS and CCS sources as determined from the preceding six-monthly off-take survey.

4.122 Sub-group, group and general indices for each of the centres are computed as weighted arithmetic averages of the respective constituent indices. All-India index is compiled on the lines adopted in the 1960 base series, as weighted arithmetic average of 59 centres' indices using weights proportionate to aggregate estimated consumption expenditure of urban non-manual population represented by the respective centres' indices.

Computation of House Rent Index

4.123 The change in rent and related charges which constitute a single item under housing group, is captured through Repeat House Rent Surveys (RHRS) conducted in the form of six-monthly rounds. The dwellings selected for RHRS are those occupied by a sub-sample of UNME families covered in the family living survey (1982--83) in each centre. The house rent index is calculated once in every six months i.e. in January and July of every year, and is kept constant for the entire six months on account of the tendency of house rent to remain more or less stable over short periods. The house rent index is compiled by chain base method and is the weighted average of rent indices of rented, rent free and self-owned dwellings (with comparable rented dwelling), using weights as proportions of three categories as revealed from the family living survey with the bifurcation in the proportion of self-owned dwellings into self-owned with and without comparable rented dwellings on the basis of House Rent Survey in the base period. Since self-owned without comparable rented dwellings are replaced, its share of weight is apportioned to rented dwellings. In the computation of house rent index besides rented dwellings, self-owned dwellings and rent-free dwellings are also taken into account. The former is included with a proxy index based on the rent relatives of comparable rented dwellings with the weight in proportion to the number of self-owned dwellings, while the rent relative for rent-free dwellings is taken as 100 with the weight in proportion to the number of dwellings in this category.

Seasonality

4.124 The procedure for treatment of seasonal items under the sub-groups 'Vegetables' and 'Fruits' of 'Food' group is the same as in the case of CPI(IW) given in paragraph 4.50 of Chapter IV.

Missing Quotations

4.125 The procedure for treatment of missing quotations is the same as in the case of CPI (IW) given in paragraphs 4.51 and 4.53 of Chapter IV.

Quality Adjustment

4.126 Prices are collected for specified varieties prescribed for each item from the selected/reserved shops. However, in case of non-availability of specified variety in the selected/reserved shops, attempt is made to collect the price of the missing specification from any other shop in the market. In case the above procedure fails, then price is collected for some other specification from the selected market. First preference is given to collect price of comparable alternative specification if available, from the selected outlet, failing which from the reserve shops, failing which from any other shop in the selected market.

4.127 In all cases the general principle adopted, as far as possible, is to substitute specifications/outlets from the selected market by various alternatives following the order of priority as indicated above. In certain cases, particularly in the smaller centres where the number of outlets available in the centre falls short of the required number of quotations with provision

for reserves being very limited or practically 'nil', the price for the missing specification is collected from another markets preferably located nearby to the selected market, since the prices in the neighbouring market are likely to have similar trends. In case an alternative outlet for the original specification is not available in the neighbouring market, then attempt is made to collect price of some comparable alternative specification from the nearby market, if available.

4.128 In cases where substitution of the original specification by any comparable specification is called for, choice of the comparable alternative specification is made in consultation with the shopkeepers of the market or other knowledgeable persons, after matching the physical and other characteristics of the alternative with those of the original. The following other considerations are kept in view in choosing a comparable alternative specification:-

Popularity of the alternative with UNME population,
Its availability in the market in sufficient quantity and
Its likelihood of remaining in the market for some time.

In case of difficulty in choosing a comparable alternative, price is taken as an indirect indicator for the purpose.

4.129 In all cases of temporary substitution, the prices of the original specification and of a substitute variety from reserve/alternative outlet are collected for the current month as also for previous three months, and the following adjustment is made through the process of splicing

$$P_n = P_{n-1} \times \frac{P'_n}{P'_{n-1}}$$

where P_n is the estimated price of original variety of the item in the current month when the same was not available in the market, P'_n is the price of substitute variety in that month, P_{n-1} is the price of original and P'_{n-1} of the substitute variety in previous month. Normally, the price data for previous month would suffice for the purpose of splicing the new price with that of the original price to get a continuous price relative.

However, in order to ensure stability of the splicing factor prices, it is desirable to check up the splicing factor for two common periods. Only if all the alternative procedures laid down above, fail to yield satisfactory substitute price quotations, 'no quotation' is reported.

4.130 If the original variety which was temporarily replaced by the substitute variety, re-appears in the market/outlet in saleable quantity within a period of 3 months, then the reporting of prices of the original variety is resumed. Otherwise, necessary adjustment is made in the base year price itself.

Linking Factor

4.131 In order to maintain continuity in the time series data on index numbers, it is necessary to provide linking factor so that new series when released, may be compared with the outgoing series. It provides a basis for determination of cost escalation and wage settlement, and also generates a time series data over a long period for analytical purposes.

4.132 The linking factors for conversion of the current series to old 1960 base series in respect of common centres and all-India were worked out by computing the corresponding average monthly indices for the period April 1984-March 1985 (the base year of the current series) and these average indices were equated to 100 in the current series. For linking factor in respect of all-India general index the average monthly all-India general index on base 1960, for the period April 1984-March 1985 works out to be 532. As such, the linking factor for all-India general index is 5.32.

Release of Index

4.133 According to the Annual Release Calendar (ARC) of Standard Data Dissemination System (SDDS) of the IMF, the CPI (UNME) for a month is released through a Press Note on 25th or the next working day of the following month. The Press Note is also put on the website of the Ministry of Statistics and Programme Implementation on the same day. The indices at group and sub-group level for 59 urban centres and all-India are published in the Monthly Abstract of Statistics, a publication of the CSO. A six-monthly Brochure giving the monthly indices at sub-group and group level and all groups combined (general index) in respect of 59 urban centres and all-India, along with yearly indices (calendar year and financial year based on 12 monthly averages) for the last ten years, is also brought out.

Release of linked all India CPI (UNME)

4.134 The Consumer Price Index for Urban Non-Manual Employees [CPI (UNME)] numbers on base 1984-85=100 in respect of 59 urban centers and all -India were earlier compiled and released by the Central Statistical Organisation, Ministry of Statistics and Programme Implementation. Because of outdated base year and also deployment of field investigators for collection of price data for a broad based CPI (Urban) number, the National Statistical Commission in its meeting held on 15.2.2008 decided to:
(i) Discontinue the CPI (UNME)
(ii) Adopt link index, based on ratio method after aggregating the sub group level indices of Labour Bureau's CPI (Industrial Workers) using CPI (UNME) weights at group/sub-group level for all India.
(iii) Compile linked CPI (UNME) numbers till new series of CPI (Urban) is brought out.

2. Based on the methodology given by National Statistical Commission, ratio of CPI (UNME) numbers to CPI (Industrial Workers) numbers for each of the 24 months for the
two years period from January, 2006, December, 2007 at sub-group level has been worked out. Average ratio at each level based on 24 months figure is taken as the linking factor at the respective level. The CPI (UNME) weights have been used to get the indices at group and all groups levels.
3. Price collection for CPI (UNME) was discontinued with effect from April 2008. As decided by the National Statistical Commission, linked All-India CPI (UNME) numbers are released for meeting the requirement of the users from April 2008.

Limitations

4.135 The weights of the current series on base 1984-85, refer to 1982-83 though the base period selected for all the centres' series is the year 1984-85. However, no adjustment for the difference in price levels between the two periods (the period to which the weights refer and the base period) could be made in the weights (though this might be theoretically desirable) because necessary price data for the year 1982-83 was not available for the purpose.

4.136 With the passage of more than two decades since the family living survey was conducted in 1982-83, considerable changes have taken place in the economy attributable to rapid urbanization and globalization of various economic activities. This has significantly affected the consumption pattern of the population in general, and of urban non-manual population in particular. As such, the consumption basket of the current series of CPI(UNME) has lost its basic relevance because several new commodities/specifications of commodities have come into vogue while many old ones have disappeared altogether.

4.137 Secondly, the frame of markets/outlets prepared in the course of Market Survey conducted in 1983, which was used for selection of markets and outlets/shops for collection of price data, has become too old/outdated. Similar situations are faced in the field in respect of dwelling units in the frame for House Rent and Off-take Survey.

Consumer Price Indices for Agricultural Labourers and Rural Labourers

Introduction

4.138 The enactment of Minimum Wages Act, 1948 is an important milestone in the history of the compilation of CPI Numbers for Agricultural Labourers. This act requires fixation as well as revision of minimum wages from time to time 'to accord as nearly as practicable with the variation in the Cost of Living (now called Consumer Price Index Numbers) applicable to such workers'. This Act is applicable to all scheduled employments mentioned in Parts I and II of the schedule, of which Part II relates to the employment in Agriculture. In view of the statutory provisions of the Minimum Wages Act, 1948, the Ministry of Labour and Employment in consultation with the Planning Commission decided to construct and maintain Consumer Price Index Numbers for Agricultural Labourers on the basis of the weights provided by the First Agricultural Labour Enquiry (1950-51). Accordingly, an interim series of Consumer Price Index (CPI) Numbers for Agricultural Labourers (AL) on base 1950-51, was constructed by the Labour Bureau, Government of India. The consumer expenditure data collected during the First Agricultural Labour Enquiry conducted by the National Sample Survey Organisation (NSSO) in 1950-51, formed the basis for derivation of weighting diagram and the rural retail price data for about 70 selected commodities collected from sample villages along with the Agricultural Labour Enquiry, provided the base prices for construction of the interim series of CPI Numbers. The NSSO started regular collection of rural retail prices from September, 1956. The prices data was collected from a moving sample of 300 villages up to June, 1958, which changed from month to month. From July, 1958 onwards the prices were collected from a fixed set of 800 villages with one set each of 400 villages surveyed every alternate month. The interim series of index numbers on base 1950-51, was complied for 15 States/groups of States and for all-India from September, 1956 to August, 1964 as per methodology approved by the Technical Advisory Committee on Statistics of Prices & Cost of Living (TAC on SPCL). These indices were published in the Indian Labour Journal, a monthly publication of the Labour Bureau.

4.139 As the interim series was constructed on the basis of prices collected from a sample of moving villages every month, doubts were expressed about its technical soundness. The TAC in its 4th meeting held on 9th April 1959, observed that while there was no objection on state indices based on moving sample of price villages, as an interim series, zonal indices based on very few quotations need not be published. The TAC did not approve the interim series of all-India index numbers and suggested that the weighting diagram based on the data of the Second All-India Agricultural Labour Enquiry (1956-57) might be adopted for construction of CPI Numbers for Agricultural Labourers as it related to a recent period.

4.140 The Second All-India Agricultural Labour Enquiry (1956-57) covered 28,560 agricultural labour households in about 3,600 villages scattered in all the 14 reorganised States and 4 Union Territories of the Indian Union. The weighting diagrams for 15 States/groups of States and all-India were derived from the expenditure data collected in detail as an independent sample of 7841 agricultural labour households residing in the sample villages. During the 16th Round of the NSS (July, 1960 to June, 1961) preliminary enquiries were conducted to determine the markets and shops serving the sample villages and also to fix specifications of the items included in the index basket. Rural retail prices collected by the NSSO during 1960-61 from a fixed set of 422 sample villages (two villages from each of 211 basic strata) in respect of items for which specifications were fixed, provided the base prices required for construction of the 1960-61 base CPI series. The prices continued to be collected by the NSSO in respect of 422 villages spread among 38 Agricultural Labour Enquiry Zones and 15 States/groups of States. A series of CPI Numbers for Agricultural Labourers on base 1960-61, in respect of 15 States/groups of States and all-India had been released with effect from September, 1964. Though the revision of the frame of markets and shops prepared in 1960-61 was done in the year 1968-69, yet the sample price villages and the specifications of items priced by and large remained fixed.

4.141 With the passage of time since the Second All-India Agricultural Labour Enquiry was conducted in 1956-57, considerable structural changes in the economy had taken place affecting

the general patterns and levels of consumption. In particular, the consumption habits of the Agricultural Labour Households had undergone appreciable changes on the one hand and distortions in the consumption patterns had also occurred due to radical changes in the price structure of various consumption items on the other. Moreover, several new items of consumption had also come into vogue while few old ones had disappeared altogether from consumption basket. Thus, the CPI series on base 1960-61, required revision to represent the true consumption pattern of the Agricultural Labour Households. Accordingly, the Labour Bureau started compiling the CPI series for Agricultural Labourers on base 1986-87, replacing the old 1960-61 base series, along with a new series of CPI Numbers for Rural Labourers (RL) on base 1986-87, with effect from November, 1995. For construction of Consumer Price Index Numbers for Rural Labourers and its sub-set Agricultural Labourers the retail prices in respect of selected items of goods and services are collected by the NSSO from 1461 markets corresponding to 600 sample villages in 20 states spread over the country since July, 1986. The Consumer Price Index Numbers on base 1986-87, are being presently compiled on monthly basis, for 20 states and all-India, separately for Agricultural Labourers and Rural Labourers.

Concepts and Definitions

Rural Labour Households

4.142 Rural Labour Household has been defined as a household whose income during the last 365 days was more from wage paid manual labour (agricultural and /or non-agricultural) than either from paid non-manual employment or from self-employment.

Agricultural Labour Households

4.143 Of the households which are initially classified as Rural Labour Households, those deriving 50 percent or more of their total income from wage paid manual labour in agricultural activities, are treated as Agricultural Labour Households.

Rural Labour

4.144 Rural Labour is defined as 'one who does manual work in rural areas in agricultural and/or non-agricultural occupations in return for wages in cash or kind, or partly in cash and partly in kind'.

Agricultural Labour

4.145 A person is treated as an Agricultural Labourer if he/she followed one or more of the following agricultural occupations in the capacity of a labour on hire, whether paid in cash or kind, or partly in cash and partly in kind (excluding exchange labour):-

Farming including cultivation and tillage etc.
dairy farming
production, cultivation, growing and harvesting of any horticultural commodity
raising of livestock, bee-keeping or poultry farming
any practice performed on a farm as incidental to or in conjunction with the farm operations including any forestry and timbering operations, and the preparation for market and delivery to storage or to market or to carriage for transportation of farm products.

It may be noted that the manual work in fisheries is excluded from the category of agricultural labourer. Further, carriage for transportation falling under the category (e) above, refers only to the first stage of the transport from farm to the first place of disposal.

Coverage of States

4.146 As a part of the all-India Consumer Price Index for Agricultural Labourers, separate series of index numbers on base 1960-61, had been compiled for 15 states/groups of states by the Labour Bureau. With the reoganisation of states the need arose to compile indices for all the states including newly created states. Taking into consideration the need for implementing the Minimum Wages Act, 1948 in respect of Agricultural Labour and also the need to provide an

indicator of the level of consumer prices affecting the weaker sections of the rural population, the Working Group on Rural Retail Prices set up in 1974 under the Chairmanship of the Director, Central Statistical Organisation, recommended that besides 15 states for which separate series were available, it was desirable to have separate series for the state of Haryana, Himachal Pradesh, Manipur, Meghalaya and Tripura. As regards Union Territories, the Working Group observed that an attempt to compile separate series for each of them would increase the field work considerably without commensurate increase in utility. Such Union Territories might, therefore, make use of the index series of the adjoining States. Thus, the Working Group recommended that the series of CPI Numbers should be compiled for twenty states.

Source of Weights

4.147 The National Sample Survey Organisation (NSSO) conducts quinquennial surveys on consumer expenditure and employment-unemployment. The estimates of consumer expenditure generated from the central sample data of its 38th round quinquennial survey conducted during the year 1983, formed the basis for derivation of weights for different items of goods and services, used in compilation of CPI(AL) and CPI(RL). The relevant data was collected by NSSO through Household Schedule 1.0 - Consumer Expenditure.

4.148 In the 38th round survey of NSS, a stratified two-stage sampling design with villages/urban frame survey (UFS) blocks as the first stage units in rural/urban sectors, and households as the second stage units, was adopted. In the central sample 1,20,843 households from 8,564 villages and 4,544 urban blocks spread over the country, were surveyed. Out of the 1,20,843 households 78,612 belonged to the rural sector and the remaining to the urban sector.

4.149 From the data collected under the central sample of the survey, the consumer expenditure on different items of goods and services was estimated separately for agricultural labour households and rural labour households in respect of 20 states. The consumption of own production if any, was also taken into account. The consumption expenditure on home produced goods was estimated at prevailing market prices and added to expenditure on purchases to arrive at the total consumption expenditure per household. The estimated expenditure on various items of goods and services so arrived, together with their percentage shares to total consumer expenditure, was used in deriving the weights at item, sub-group and group level for compilation of CPI for the respective segment of population.

Average Budget and its Classification

4.150 As per the usual practice, the average budget (household consumer expenditure) derived from the central sample data of NSS 38th round survey conducted during the year 1983, recorded expenditure on various items covering a wide range of goods and services. These items of expenditures were broadly classified into following two categories:-

Non-consumption expenditure and expenditure on unpriceable items

Consumption expenditure

Only consumption expenditure formed the basis for construction of weighting diagram for Consumer Price Index Numbers. Expenditure on non-consumption items and unpriceable items like rent and repairs of residential building or land, direct taxes, priest services (including ceremonial expenditure) and precious jewellery or ornaments (like gold, silver, pearl, etc.) was excluded from the average budget. The expenditure on house rent accounting for 'nil' or negligible proportion (0.04 % for Agricultural Labourers and 0.12 %for Rural Labourers) of total consumption expenditure was also excluded from the average budget. The expenditure on rest of the items (including the durable goods) in the average budget was considered as consumption expenditure. In order to facilitate derivation of weights at item/sub-group/group level and computation of the index, the groups and sub-groups were formed, to the extent possible, on the pattern of the series of CPI for industrial workers on base 1982. The items of consumption expenditure were classified into following five groups:-

Food

Pan, Supari, Tobacco and Intoxicants

Fuel and Light
Clothing, Bedding and Footwear
Miscellaneous.

The items falling under the groups 'Food' and 'Miscellaneous' were further classified into the following sub-groups:-

Food Group
- Cereals and cereals products
- Pulses and pulses products
- Oils and Fats
- Meat, Fish and Eggs
- Milk and milk products
- Condiments and Spices
- Vegetables and Fruits
- Others

Miscellaneous Group
a) Medical care
b) Education, Recreation and Amusement
c) Transport and Communication
d) Personal Care and Effects
e) Others

Imputation of Weights

4.151 It is neither necessary nor practicable to include all the items of expenditure in the index because of their un-manageability due to large number or existence of items which can not be priced easily or non-availability of regular price data for some of the items. In order to meet such an exigency, recourse to imputation of weights was taken.

4.152 As per the usual practice, the imputation was done at four levels, viz. (a) item level, (b) section level, (c) sub-group level and (d) group level. Item level imputation consists of straight addition of expenditure of one or more unpriced items to a priced item within the same section. Section level imputation consists of a proportionate distribution of expenditure of one or more unpriced items over several priced items within the same section. In such cases, the unpriced items follow or are assumed to follow the combined price trend of more than one priced item within the same section. The remaining two levels of imputation consist of proportionate distribution of expenditure of one or more unpriced items over all the remaining priced items included in the sub-group/group. In such cases, the excluded item can neither be taken to follow the price trend of any specific priced item of the sub-group/group, nor the combined price trend of the included items of the concerned section. The implicit assumption of imputation is that the price behaviour of the imputed item is the same as that of the item/section/sub-group/group in which its expenditure has been imputed. Examples of imputation are paragraph 3.28 of Chapter III.

Construction of Weights

4.153 After completion of imputation process as discussed above, the resultant expenditure on each item which is finally retained for pricing, was expressed as percentage to the total expenditure accounted for by all the items included in the sub-group/group, to yield the final weight of the items within the sub-group/group. Similarly, sub-group/group weights were derived by working out percentage expenditure, including sub-group/group level imputations, on each sub-group/group as compared to total consumption expenditure. This provided the weighting diagram for compilation of Consumer Price Index for Agricultural Labourers and Rural Labourers of each state. All-India weights have been derived from the state-level weighting diagrams.

Collection of Rural Retail Prices

4.154 The Working Group on Rural Retail Prices considered various aspects of collection of rural retail prices for the index including the sampling frame of markets and price villages, and recommended an overall sample of about 800 villages at the all-India level. The NSSO considered the recommendation of the Working Group and after consultations with the Labour Bureau and the Central Statistical Organisation, suggested some modifications in the procedure to be followed for collection of rural retail prices. The modified scheme envisaged collection of prices initially from a new set of 600 villages and subsequently from 1000 villages with replacement of one fifth of the sample villages every year. The TAC considered these suggestions and approved the construction of new series on index numbers involving partial replacement of price villages every year. The allocation of 600 villages among 20 states was done on the basis of the recommendation of the Working Group which studied variation of prices within each state to determine optimum sample size so as to yield an estimate of index with error of not more than 2 percent. Keeping in view the operational frame work of the Field Operations Division (FOD) of NSSO, some deviations from the optimal sample size were made. The sample size for a state was allocated to the regions within it in proportion to their rural population and in multiple of 3. Within each region, strata were formed by grouping contiguous districts as far as possible. The allocation to a stratum was generally 3 villages, except in case of 13 strata (one each in Assam, Karnataka, Manipur and Meghalaya; two each in Jammu & Kashmir, Kerala and West Bengal and three in Orissa) which have six villages each. The state-wise distribution of 600 villages is given in Annexure IV.

4.155 During the period March-July 1986, the NSSO carried out preliminary enquiry for selection of markets and shops for fixation of specifications of items (which are presently being priced) in 600 sample villages spread over 20 states. The regular collection of rural retail prices commenced with effect from July, 1986. The collection of retail prices is staggered over four weeks of a month with one fourth of the samples covered every week. Prices are collected on the fixed price collection day which may be a 'Hat' day for 'Hats' or non-daily markets, and any market day for daily markets.

4.156 For both the current series of CPI(AL) and CPI(RL), the retail prices in respect of selected items of goods and service are collected on monthly basis, by the NSSO from 1461 markets corresponding to 600 sample villages (one price quotation from each village) in 20 states spread over the country. The prices for these two series are the same but the weights at the compilation stage are different for the two labour class households i.e. agricultural labour households and rural labour households. The number of items included in both the indices in a state varies from 65 to 106, the item coverage for these indices at all-India level is 180. Among these there are various items for which price data are collected for more than one variety.

4.157 The method of construction of both the series of index numbers is given in the following paragraphs. The methodology which is uniform for all the states, was finalized in consultation with the Technical Advisory Committee on Statistics of Prices and Cost of Living (TAC on SPCL) and both the series are being presently compiled in respect of 20 states and all-India.

Scrutiny of Price Data

4.158 As mentioned in the preceding paragraph that for both the current series of CPI(AL) and CPI(RL) the retail prices in respect of selected items of goods and service are collected by the NSSO from 1461 markets corresponding to 600 sample villages in 20 states spread over the country. The Field Operation Division of NSSO has a dedicated workforce of 69 Investigators to collect price data on full time basis. Like other field surveys undertaken by FOD, there is a built-in mechanism for ensuring the quality of price data collected for CPI(AL) and CPI(RL). This includes regular supervision of field work and desk scrutiny of the filled-in schedules. The work of each primary worker (Investigator) is inspected every week by his supervisory officer and on a reduced scale by next higher authorities. Cent percent desk scrutiny of filled-in schedules is undertaken and all discrepancies are sorted out before the same are dispatched to the Labour Bureau. However, overall scrutiny of prices is done in Labour Bureau before the same are utilized for index

compilation. Prices are posted for inter-village, inter-period and inter-region comparisons and discrepancies if any, are sorted out through correspondence with the field or personal visits by the staff of the Labour Bureau.

Treatment of items supplied through Public Distribution System

4.159 In compilation of index the fair prices and open market prices of the items supplied under Public Distribution System (PDS), are utilized in appropriate proportion. The weight for fair prices is determined on the basis of the proportion of the total requirements (as per household consumer expenditure survey) met through fair price shops, and the balance forming the weight for the open market prices. In both the series of CPI Numbers for Agricultural Labourers and Rural Labourers on base 1986-87, the part of the requirement of an item obtained through ration shops, has been calculated taking into account the actual availability (restricted to the admissible quantum) of the item in the selected ration shops rather than on the basis of admissibility i.e. as per the scale of supply prescribed by the rationing authorities, as was the practice in the series of CPI Numbers for Agricultural Labourers on base 1960-61.

4.160 The Govt. of India revamped the Public Distribution System in 1995-96 and a new economic criterion was set up for distribution of rationed items through PDS. Under this system, highly subsidised rates are being charged from the beneficiaries living below poverty line (BPL) and moderate subsidised rates from the beneficiaries living above poverty line (APL) Thus owing to the introduction of this new system, two different rates i.e. the BPL rates and the APL rates started reporting in the price schedule in place of a single fair price rate reported earlier. The information relating to APL cards and BPL cards is being reported separately by the Price Collectors and used for arriving at the weighted average price of rationed items on the basis of the proportion of families living under APL and BPL.

Base Period

4.161 It is desirable that a uniform base period should be adopted for all the state- specific index series so that the all-India index series could be obtained directly from the states' indices without resorting to any arithmetical shifting of base. Theoretically, the period of the household consumer survey which yields the weighting diagram for the index, should synchronize with the base period of the index series. In practice, however, it is not feasible. As stated in paragraph 4.8 of Chapter IV, the NSSO carried out preliminary enquiry during the period March-July, 1986 for selection of markets and shops for fixation of specifications of items (which are presently being priced) in 600 sample villages spread over 20 states. The regular collection of rural retail prices in all 600 sample villages commenced with effect from July, 1986. The base period of both the current series of CPI(AL) and CPI(RL) has been taken as Agricultural Year July, 1986 to June, 1987. This means that for a state the Consumer Price Index Number for Agricultural/ Rural Labourers for any month measures the change in the average price level of a fixed basket of goods and services normally consumed by an agricultural/rural labour household of the same state as compared to the average level of prices of the same basket of goods and services during the year July, 1986 - June, 1987.

Base Prices

4.162 As mentioned in paragraph 4.156 of Chapter IV that the retail prices in respect of selected items of goods and service being collected by the NSSO from 1461 markets corresponding to 600 sample villages in 20 states spread over the country, are same for both the current series of CPI(AL) and CPI(RL). A simple arithmetic average of prices for an item for 12 months of the year 1986-87 was taken as the base price for that item. The base price in respect of each item was worked out for each village in a state.

Computation of Index

4.163 The Consumer Price Index for a given state is compiled by using the Laspeyres' base weighted formula. The formula in its aggregative form is expressed as below:-

$$I_n = \frac{\Sigma q_o p_n}{\Sigma q_o p_o} X\ 100$$

where I_n is the index for a given period (current month), p_o and p_n are base and current prices respectively of an item, q_o is the quantity of that item consumed in the base period and the summation 'Σ' extends over all the items included in the index. The formula can be expressed as:-

$$I_n = \frac{\Sigma q_o p_o X (p_n / p_o)}{\Sigma q_o p_o} X\ 100$$

where the expression $q_o p_o$ denotes the expenditure on an item in the base period and is termed as the weight and (p_n / p_o) is called Price Relative, which is the ratio of the current price to base price of an item.

4.164 The indices for both the series are compiled separately for each of the 20 states and on the basis of these state indices the all-India indices are also complied. In compilation of the state level index, the price relative of each item in respect of each village is worked out. A simple average of village-wise price relatives of all the items is worked out at zonal (regional) level in the state. Zonal price relatives thus derived, are weighted to arrive at the state level price relatives, the weights being the estimated expenditure of all rural/agricultural labour households in a zone as a proportion to expenditure of all the concerned households of all zones in the state.

4.165 The state index is worked out as weighted average of these state level price relatives using the weights assigned to various items in the weighting diagram of the state as determined by the Consumption Expenditure Survey of the rural/agricultural Labour households. The all-India index is worked out as a weighted average of 20 states' index numbers, the weights being the estimated consumption expenditure of all rural/ agricultural labour households in each state as a proportion of the sum total of such expenditure for all states for which the index is compiled.

Seasonality

4.166 The procedure for treatment of seasonal items under the sub-group 'Vegetables and Fruits' of 'Food' group is the same as in the case of CPI(IW) given in paragraphs 4.49 and 4.50.

Quality Adjustment

4.167 As per the practice, the price quotations of items included in the index basket are collected from the selected/reserved shops in the market. In case of non-availability of the specified/prescribed variety in the selected/reserved shops, efforts are made to collect the price of the same from any shop in the market and utilized in the index compilation. However, sometimes situation arises when the prices of some items are not collected/reported by the Investigators engaged in the price collection work due to one reason or the other, then the prices are repeated for the purpose of index compilation consecutively for three months. If the situation continues for more than three months, the following method of substitution is adopted:-

Comparable Substitute

4.168 A comparable variety of the item, which is equivalent or nearest to the specified variety in quality and contents to the prescribed one, is selected and the prices are collected for this substitute on a continuing basis. For judging the comparability the following points are taken into account.

Manufacturing process
Similarity of want/usage
Quality
Quantity/Unit
Price trend as a last resort

If the new variety selected as a substitute of the old/defunct variety is judged as comparable then no adjustment in price is resorted to. In such situation price reported by the price collector are directly utilized for index compilation.

Non-comparable Substitute

4.169 In the event of non-availability of a comparable substitute in the market, another variety which is not equivalent in quality and contents to the prescribed variety and popular among the village folk, is selected and utilized in index compilation after proper linking. In such case, the price of the non-comparable variety is collected for the current month i.e. the month in which the priced item disappeared, as well as for the previous month and utilized in index compilation after making the following adjustment which is known as 'splicing' or 'linking':-

$$P_n = P_{n-1} \times \frac{P'_n}{P'_{n-1}}$$

where P_n is the estimated price of original variety of the item in the current month when the same was not available in the market, P'_n is the price of substituted variety in that month, P_{n-1} is the price of original and P'_{n-1} of the substituted variety in previous month. Normally, the price data for the previous month would suffice for the purpose of splicing the new price with that of the original price to get a continuous price relative.

If the original variety which was temporarily replaced by the substitute variety, re-appears in the market/outlet in saleable quantity, then the reporting of prices of the original variety is resumed.

4.170 In the event of non-availability of an item in the market and no comparable or non-comparable substitute of the specified/prescribed variety of the item is available, the weight of the item is imputed to other items. The imputation is done at four levels depending upon the kind, quality and seasonality etc. of the item whose weight is to be imputed, as explained in paragraph 7.3 of Chapter III.

Linking Factor

4.171 In order to maintain the time series data on Consumer Price Index Numbers for Agricultural Labourers (all-India and each state), the linking factors for general Index and Index of 'Food' were worked out so as to arrive at the old series of index numbers on base 1960-61, from the indices of current series on base 1986-87, by taking the ratio of average indices of old and current series for the last 36 months preceding the month of release of current series (i.e. Nov., 1992 to October, 1995). However, in case of two states (Regions) viz. Punjab and Assam for which old series had been compiled for the composite regions (viz. Punjab, Haryana and Himachal Pradesh in case of Punjab Region and Assam, Manipur, Meghalaya and Tripura for Assam Region), the linking factors were worked out by computing the weighted composite index for them, the weights being the estimated consumption expenditure of all agricultural labour households in both the component states as a proportion of sum total of such expenditure. After working out the composite index of these two states (Regions), the linking factors for these two states (Regions) were worked as explained above.

Release of Index

4.172 According to the Annual Release Calendar (ARC) of Standard Data Dissemination System (SDDS) of the IMF, the Consumer Price Indices for Agricultural Labourers and Rural Labourers in respect of 20 states and all-India for a month are released on or last working day before 20th of the

following month. The monthly index numbers are disseminated through Press Note, Indian Labour Journal and website of the Labour Bureau, etc. An Annual Report giving the monthly indices at group level and all groups combined (general index) in respect of 20 states and all-India along with yearly indices (agricultural year based on 12 monthly averages) for the last ten years and a note on methodology for compilation of these indices, is also brought out.

Limitations

4.173 The weights of both the current series of Consumer Price Index Numbers for Agricultural Labourers and Rural Labourers refer to 1983 though the base period for these series is the year 1986-87. However, no adjustment for the difference in price levels between the two periods (the period to which the weights refer and the base period) could be made in the weights (though this might be theoretically desirable) because necessary price data for the year 1983 was not available for the purpose.

4.174 The current series of Consumer Price Index Numbers for Agricultural Labourers and Rural Labourers is more than 23 years old with reference to price base (1986-87) and 27 years old with reference to weights (1983). This has affected adversely the quality of index in one way or the other due to following reasons:-

- The consumption basket of both the current series has lost its basic relevance because several new commodities/specifications of commodities have come into vogue while many old ones have disappeared altogether,
- The consumption patterns of two segments of target population viz. agricultural labour households and rural labour households have changed significantly and as such the goods and services included in the indices are no longer popular among the agricultural /rural labour households,
- With the lapse of time, some of the shops/markets have either closed down or lost popularity with the segment of population concerned,
- New markets/shops have come into existence and they are more popular among the agricultural /rural labour households.

The above situations have implications not only on the price collection work but also for the technical soundness of the CPI series. This necessitates the revision of base year of CPI series to a recent base year to capture the fast changing consumption pattern of the target population.

A Comparative table showing the salient features of Consumer Price Indices compiled at National Level follows :

Salient Features of Consumer Price Indices compiled at National Level

Sl. No.	Salient Feature	CPI(UNME)	CPI(IW)	CPI(AL)	CPI(RL)@
1.	Source of weights				
	Family Living Survey	1982-83	1999-2000		
	Consumer Expenditure Survey			1983 (NSS 38th Round)	1983 (NSS 38th Round)
2.	Base year of the series	1984-85	2001	1986-87	1986-87
3.	No. of centres/villages	59 urban centres	78 centres	600* villages	600* villages
4.	No. of markets/ quotations	1022	289	1461	1461
5.	No. of items in the consumption basket	146-345	175-200	260*	260*

6.	Index released for	59 centres & all-India	78 centres & all-India	20 states & all- India	20 states & all-India
7.	Periodicity of index	monthly	monthly	monthly	monthly
8.	Time lag of the Index	24 days*	1 month	3 weeks	3 weeks

* - Price collection for CPI (UNME) was discontinued with effect from April 2008. As decided by the National Statistical Commission, linked All-India CPI (UNME) numbers are released for meeting the requirement of the users from April 2008.

※ - Villages and items for collection of price data for CPI(AL) and CPI(RL) are same.

@ - A new CPI series for Rural Labourers started from November, 1995.

New Initiatives by CSO

New Series of National Level CPI(s) for Urban and Rural areas

4.175 The CPI numbers being compiled presently at national level pertain to different segments of population and do not include the entire population and as such they do not reflect the true picture of the price behavior in the country as a whole. It is, therefore, necessary to compile a CPI which takes in to account the consumption pattern of all segments of the population. CSO has taken steps to compile CPI numbers separately for rural and urban areas and also national CPI based on these two indices. Both CPI (Urban) and CPI(Rural) would be compiled for each State/UT as well as at all India level. Weighting diagrams of these two series(s) have been derived from the results of the NSS 61st round of Consumer Expenditure Survey (2004-05).

4.176 The 61st Round survey covered entire Indian Union except Leh and Kargil districts of Jammu & Kashmir, interior villages of Nagaland and inaccessible villages of Andaman & Nicobar Islands. The sample design followed was a stratified multistage design First stage units were census villages in the rural areas and urban frame survey blocks in the urban areas. Households formed the second stage unit in the both urban and rural areas.7999 villages and 79298 households were surveyed under the central sample in rural areas and 4602 urban blocks and 45346 households were surveyed in the urban areas . The weighting diagrams in both rural and urban areas are based on the central sample data alone.. For further details of sample design .etc., the instructions manual (Vol. I) of the NSS 61st Round Survey may be referred to.

4.177 In the Family Living Surveys conducted by the Labour Bureau as also by the Central Statistical Organisation in the past for the derivation of weighting diagrams for construction of Consumer Price Index series for Industrial Workers and for Urban Non-manual Employees, consumption expenditure data and other relevant information collected pertained to the respective families. Members in the family are normally related by blood. On the other hand weighting diagrams for CPI for Agricultural Labourers and Rural labourers are based on average monthly consumer expenditure per household collected in NSS consumer expenditure surveys. Similarly weighting diagrams for the proposed CPI for Rural and Urban as also National CPI by combining the two , have been derived from the data on average consumer expenditure per household. The concept of the household is slightly broader.

4.178 A group of persons normally staying together and taking food from the same kitchen constitutes a household. Thus, while the person(s) temporarily staying away are included as members of the household, temporary visitors are excluded. Sons and daughters studying away are not considered as members of the parents' household but resident employees/domestic

servants and paying guests (not just tenants) are treated as members of the household . In the Family Living Surveys, in the family budget enquiry schedule, for each block information was collected if any extra member other than the family members participated in the expenditure recorded for the block. To arrive at the expenditure for the family, the expenditure recorded in the block was multiplied by a factor f/(f+e) where f is the number of the family members and e the number of extra members who participated in the expenditure in the block. This is a conceptual difference.

CPI for Urban areas

4.179 Keeping in view availability of field resources, the workload of the price collection for the new series of CPI(Urban) has been kept around 1100 quotations. Broad criteria for allocation of price quotations and selection of towns are given below.

4.180 These quotations were distributed to States/UTs on the basis of urban population (Population Census 2001).For regular price collection, all cities/towns having population (2001 Population Census) more than 9 lakh and all state/UT capitals not covered therein were selected purposively. Quotations were allotted to these cities/towns as per following criteria.

Towns having population	No. of quotations allotted
9 –25 lakh	8
25 lakh – 1 crore	12
More than 1 crore	24
Remaining State/UT capitals	4

After selecting the towns/cities purposively (as stated above), remaining towns in each State/UT were divided into following four strata.

Stratum I - Remaining Class I towns (population more than 1 lakh but less than 9 lakhs)
Stratum II - All Class II towns (population 50000 – 1 lakh).
Stratum III - All class III towns (population 20000-50000)
Stratum IV - All class IV towns (population less than 20000).

After allocating quotations to the towns selected purposively, remaining quotations allocated to a state/UT were further allocated to different strata in proportion to total urban population of the towns falling in different strata.

4.181 No. of towns to be selected from strata I and II was decided on the basis of no. of quotations allotted to those strata taking 4 quotations per town. For Strata III and IV, no. of towns to be selected was decided on the basis of no. of quotations allotted to those strata taking 2 quotations per town. Towns were selected independently from each stratum circular systematically ensuring regional representation. In all 310 towns were selected covering all the States/UTs from which 1114 price quotations (Schedules) would be canvassed every month. Quotations allocated to a particular town have been distributed by ensuring both the geographical coverage of the selected town and the different segments of population living in the town (poor, middle and affluent). Further, quotations allotted for the town have been distributed over the four weeks of a month to take into account week to week variation in the prices.

4.182 In the selected towns, market survey was undertaken for (i) identification of popular markets serving different segments of population (ii) selection of shops/outlets for different commodities in the selected markets and (iii) determination of specifications of commodities to be

priced. Rented dwellings, from which house rent data are to be collected, were also identified in all the selected towns during the market survey. While selecting the dwellings for collection of house rent data, it was ensured that dwelling units inhabited by different segments of the population were represented proportionately in the sample. Similarly, representation of different sizes of dwelling unit was also ensured

4.183 Regular price collection has started from May 2008. After selection of base year and also compilation of base year prices, new series of CPI (Urban) is expected to be available during 2010-11.

CPI for rural areas

4.184 With a view to have the workload within manageable limits and considering the fact that the CPI (Rural) would provide the price changes for the entire rural population of the country, a total of 1183 villages have been selected at all India level. All the villages do not have markets. Only larger villages and those nearer to schoosl/ colleges, national/state highways etc have a market. Thus one market may cater to the needs of many villages in the vicinity and neighbourhood. Keeping this in view the broad criterion of selection of villages has been decided as indicated below. These villages have been distributed more or less equally among the four weeks to take in to account weekly variations in the prices.

(i) Within each State/UT, top 50 villages(if villages in a district are more than 50, all villages if it is less than 50) are arranged in the descending order on the basis of 2001 population for each district;
(ii) 50 villages selected above have been divided into two sets i.e. Set 1 and Set 2 (Set 1 consists of top 25 villages and Set 2 the remaining 25 villages);
(iii) With in a district, two villages (one each from Set 1 and Set 2) have been selected randomly from different tehsils. In case of only one tehsil available in a district (which is rare), both the villages have been selected from the same tehsil;
(iv) In case of some UTs where number of districts is less than three, a minimum of five villages were selected within UT.
(i) Sample size in some States/UTs, wherever required, was adjusted on the basis of rural population of the State/UT.

4.185 In the selected villages, market survey was undertaken for (i) identification of popular markets (ii) selection of shops/outlets for different commodities in the selected markets and (iii) determination of specifications of commodities to be priced. On completion of market survey, regular price collection work from the selected villages has been taken up from October, 2009.

CPI at National level

4.186 CSO has also decided to bring out national level CPI by merging CPI (Urban) and CPI (Rural) with appropriate weights. As the weighting diagrams of both CPI(Urban)and CPI(Rural) series have been derived from the results of NSS Consumer Expenditure Survey, which is undertaken by NSSO on quinquennial basis, it would be possible to revise these new CPI series every five years. This is a significant improvement in the compilation of CPI numbers in India.

Weighting Diagrams for new series of CPI (Urban) and CPI (Rural)

Source of weight:

4.187 The weighting diagram(s) for the purpose of compilation of Consumer Price Index (Urban as well as Rural) series is derived on the basis of average monthly consumer expenditure of an urban/rural household. The average monthly consumer expenditure an urban/rural household is derived from NSS 61st round Consumer Expenditure Survey data (2004-05). Only consumption expenditure has been considered for the purpose of preparation of weighting diagrams. Non-

consumption expenditure, like legal expenses, direct taxes donations subscriptions to charitable bodies etc have been excluded. Further, items of expenditure which are in the nature of savings and investments are also excluded. Among the consumption expenditure, expenditure on certain items was imputed considering its insignificant share and/or difficulties involved in their pricing.

Classification of items of consumption

4.188 After exclusion of non-consumption expenditure from the average monthly consumption expenditure, the remaining items were classified into several consumption groups and subgroups considering both COICOP as well as present classification of items adopted in existing CPI numbers compiled at national level.

Gr. 1 Food, beverages and tobacco 1.1 Cereals and cereal products 1.2 Pulses and pulses' products 1.3 Oils and fats 1.4 Meat, fish and eggs 1.5 Milk and milk products 1.6 Condiments and spices 1.7 Vegetables 1.8 Fruits 1.9 Sugar, honey etc. 1.10 Non-alcoholic beverages 1.11 Prepared meals and refreshments **1.12 Pan, supari, tobacco etc.**	**Gr. 2 Fuel and light** **Gr. 3 Housing *** **Gr. 4 Clothing, bedding and footwear** 4.1 Clothing and bedding 4.2 Footwear **Gr. 5 Miscellaneous** 5.1 Medical care 5.2 Education 5.3 Recreation and amusement 5.4 Transport & communication 5.5 Personal care and effects 5.6 Household requisites 5.7 Others

- Only for CPI(Urban)

Details of item codes (as used in Sch. 1.0 of NSS 61st round) included in different sub groups/groups are given in a subsequent statement.

4.189 It was decided to adopt multiple norms for selecting the items depending on their importance, their popularity and suitability for pricing on a continuing basis. Accordingly, following four-fold criteria were adopted:

i) to include all PDS items

ii) to include all items accounting for 1% or more of total expenditure at sub-group level.

iii) to include all items accounting for more than specified percentage of total expenditure of all consumption items:

Food & Miscellaneous > 0.04%
Fuel > 0.03%
Clothing > 0.02%

iv) to include all items for which more than 75% households have reported consumption.

All items satisfying one or more of the above four conditions were retained in the item basket. These are termed as weighted items.

Composite item

4.190 With a view to ensure adequate no. of items for pricing, it was decided to include certain important items for pricing even though the same are not being retained in the weighting diagram as such on the basis of criteria laid down. For this purpose, expenditure against those items were clubbed together and put along with the weight of "other" item of the same subgroup provided their combined weight is more than 0.5% at group level. The average price relatives of these items would be used with combined weight of these items for compilation of index. A list of such composite items along with the items included in the same is given in a subsequent statement. In case their combined weight is less that 1% at sub group level, the same were imputed at the relevant item level.

Imputation of weights

4.191 For items not retained in the weighting diagram, the expenditure recorded on such items in the consumer expenditure survey, have been imputed to other items (being retained) of the same sub-group whose price movements are expected to follow the same or similar trend as those of the items being excluded. However, there are certain items, whose expenditure weight cannot be imputed to any single item of the same sub-group on the basis of above criterion. In such cases, the only practical alternative, was to impute expenditure of such items to all the remaining items (being retained) in the concerned section / sub-group / group in proportion to the expenditure recorded on those items. In practice, imputation was done at three levels viz.

- Item level,
- Section level and
- Sub-group/Group level

Item level imputation

4.192 Item level imputation consisted of straight addition of weights of one or more items (being excluded) to an item being retained within the same section/subgroup having similar price trend. Detailed item level imputation plan covering important items of all the sub-groups/groups and their treatment for imputation is given in a subsequent statement.

4.193 Certain items, considering the difficulty in their pricing, were ignored. Expenditure weights of these items (irrespective of their expenditure share) were clubbed with weight(s) of other item(s) having similar price trend, which can be priced.

Item	**Combined with**
(Institutional) Medicine (410)	(Non-institutional) Medicine (420)
(Institutional) X ray/ECG/ pathological test (411)	(Non-institutional) X ray/ ECG/ pathological test (421)
(Institutional) Doctor/Surgeon's fee (412)	(Non-institutional) Doctor/Surgeon's fee (422)
(Institutional) Other medical expenses	(Non-institutional) Other medical

(414)	expenses (424)
Residential land rent (521) Other consumer rent (522) House rent/garage rent (imputed) (539)	House rent/garage rent (520)

Section level imputation

4.194 Section level imputation consisted of proportionate distribution of expenditure of one or more un-priced items over several priced items, which form a distinct section within the same subgroup. In these cases one or more un-priced items follow or are assumed to follow the combined price trend of several priced items within the same section. Details of sections formed under different sub groups are given in a subsequent statement.

Sub group/group level imputation

4.195 Sub-group/Group level imputation involved proportionate distribution of expenditure of one or more un-priced items over all the items included in the sub-group/group. It was ensured that expenditure reported in one sub-group/group is not transferred to another sub-group or group.

4.196 Considering the difficulty in pricing, certain items, irrespective of their expenditure weight, were imputed at section/subgroup level. Such items are Priest (485), Mela/fair/picnic (431), Pet animal/bird (493), Painting/drawing (556), Jewel/pearls (572).

4.197 Thus, final expenditure allocated to an item to be priced, includes its own weight, weights of un-priced items imputed to it wholly and also proportionate share of weights of other un-priced items imputed to it partially at sectional/sub-group/group levels. The resultant expenditure on each item, which is finally retained for pricing, is expressed as a percentage of the total expenditure accounted for by all the items included in the sub-group/group to yield the final weight of the items within the respective sub-group/group.

Weights of Sub-groups/Groups

4.198 The weight of each sub-group was obtained by expressing the total expenditure on the sub-group as a percentage of the total expenditure on all sub-groups of the same group. Similarly, weight of each group was obtained by expressing the total expenditure on the items included in the group as a percentage of the total expenditure on items of all groups.

Composition of groups/sub-groups (Item codes as per NSS 61st round)

	I. Group/Sub-Group	All items against following codes
I	**Food, Beverages and Tobacco**	
	1. Cereals	129 + 139 + 491
	2. Pulses	159
	3. Oils and fats	179
	4. Meat, fish etc.	189
	5. Milk and milk products	169

	6. Condiment, spices etc.	279 + 289
	7. Vegetables	229
	8. Fruits	249 + 259
	9. Sugar, honey etc.	269
	10. Non-alcho. beverages	290 to 298
	11. Prepared meal etc.	300 to 308
	12. Pan, supari tobacco etc.	319 + 329 + 339
II	**Fuel and Light**.	359 +460
III	**Housing**	529 + 539 + 549 + 642
IV	**Clothing, Bedding and Footwear**	
	1. Clothing & bedding	379 + 389
	2. Foot-wear	399
V	**Miscellaneous**	
	1. Medical care	419 + 429 + 629
	2. Education	409
	3. Recreation and amusement	439 + 493 + 569
	4. Transport and communication	519 + 619 + 487+ 488
	5. Personal care and effect	449 + 459 + 639 + 471
	6. Household requisites	461 to 470 + 472 + 473 + 480 + 481 + 485 + 490 + 492 + 494 + 559 + 579 + 589 + 609 + 640 + 641 + 643
	7. Others	482 to 484

Exclude: Legal Service 486

Composite items

Sl.	Composite items	Items included
1	Other rice products (106)	Chira(103), khoi/lawa(104), muri(105)
2	Other wheat products (114)	Maida (110), suji/rawa(111), sewai/noodles(112), bread: bakery (113)
3	Other milk products (167)	Curd(163), ghee(164), butter(165)
4	Other processed food (308)	Pickles (305), sauce(306), jam/jelly(307)

5	Other tobacco products (327)	Snuff(323), zarda/kimam/surti(326)
6	Other consumer services excluding conveyance (494)	Domestic servant/cook (480), sweeper (481)
7	Other furniture & fixture (557)	Bedstead (550), Almirah/dressing table (551), chair/stool/bench(552)
8	Other cooking & household appliances (601)	Stove (596), pressure cooker/pressure pan (597)
9	Other crockery & utensil (583)	Stainless steel utensil (580), other metal utensil (581), casserol/thermos/thermoware(582)

Imputation at item level

Sl.	Items to be imputed	Imputed to
1	Chira(103)Khoi/lawa(104) Muri(105),other rice products (106)	Rice-other sources (102)
2	Maida (110), Suji/rawa (111), sewai/noodles (112), bread bakery (113), other wheat products (114)	Wheat atta-other sources (108)
3	Grinding charges (491)	Major cereal
4	Arhar(140) and Khesari (148)	To one another
5	Gram split (141) and gram whole (142)	To one another
6	Gram products (151)	Major of 141 & 142
7	Besan (152)	Major of 141 & 142
8	Milk liquid (160) and Milk condensed powder (162)	To one another
9	Ghee (164) and Butter (165)	To one another
10	Gur (262), candy/misri (263)	Sugar other sources (261)
11	Tea cup (290) and Tea leaf (291)	To one another
12	Coffee cup (292) and coffee powder (293)	To one another
13	Ice (294)	Cold beverages (295)
14	Biscuit (300) and Cake/pastry(304)	To one another
15	Pan leaf (310), Supari (312), lime (313), Katha(314)	Pan finished (311)
16	Toddy (331) and country liquor (332)	To one another
17	Beer (333) and foreign liquor (334)	To one another
18	Coke(340), coal(347), charcoal(350)	To one another
19	Firewood & chips (341) and dung cake (343)	To one another

20	Lungi(365)	Dhoti (360)
21	Library charges (402)	Books & periodicals 400)
22	Telephone charges(488) and postage & telegram(487)	To one another
22	Petrol(508) and diesel (510)	To one another
23	Lubricating oil(511)	Major of 508 and 510
24	Electric fan (590) and air cooler (592)	To one another
25	Coir/rope (466)	Carpet/daree(555)
26	Motor cycle /scooter (611) and motor car/jeep(612)	To one another
27	Tyre/tube (613)	Major of 611 and 612

Details of sections formed for section level imputation

Sub Group	Sections	Items included
Cereals	Refined cereals	Rice, Wheat,
	Coarse cereals	Jowar & products, bajra & products, maize & products, barley & products, small millet & products, ragi & products, other cereals
Vegetables	Root vegetables	Potato, onion, radish, carrot, turnip, beet, sweet potato arum, garlic, ginger
	Leafy vegetables	Palak
	Fresh vegetables	Pumpkin. Gourd, bitter gourd, cucumber, parwal/patal, jhinga/torai, snake gourd, papaya(green), cauliflower, cabbage, brinjal, lady's finger, French bean & barbate, tomato, peas, chillis(green), capsicum, plantain(green), jackfruit, lemon, other vegetables
Fruits	Fresh fruits	Banana, jackfruit, watermelon, pineapple, coconut, guava, singara, orange/mausami, papaya, mango, kharbooza, pears(naspati), berries, leechi, apple, grapes, other fresh fruits
	Dry fruits	Coconut(copra), groundnut, dates, cashew nut, walnut, other nuts, raisin/kishmish, other dry fruit
Pan supari & tobacco etc.	Pan	Pan leaf, pan finished, supari, lime, katha, other ingredients of pan
	Tobacco	Bidi, cigarettes, leaf tobacco, snuff, hookah tobacco, cheroot, zarda kimam, other tobacco products

	Intoxicants	Ganja, toddy, country liquor, beer, foreign liquor, other intoxicants
Clothing & bedding	Clothing	Dhoti, sari, cloth for shirt, cloth for trousers, chaddar/shawl, lungi, gamcha/towel, hosiery articles, ready-made garments, headwear, clothing others, clothing secondhand
	Knitted garments	Knitted garments, knitted wool
	Bedding	Bed sheet/bed cover, rug/blanket, pillow, quilt, mattress, cloth for curtain, mosquito net, mats & matting, cotton, bedding others
Transport & communication	Communication	Postage & telegram, telephone charges
	Transport	Airway fare, railway fare, bus/tram fare, taxi/auto rickshaw fare, steamer/boat fare, rickshaw (manual) fare, horse cart fare, porter charges, petrol, diesel, lubricating oil, school/bus/van, other hired conveyance, bicycle, motor cycle, / scooter, motor car/jeep, tyres & tubes, other transport equipments

An exercise showing the steps involved in construction of a weighting diagram based on live data of the NSS 61st Round is given at Annexure V.

Price Collection under CPI in Select Countries

4.199 For CPI compilation we need continuous price series for items included in the market basket right from the base year of the index besides weights (expenditure shares on the items in the base year) for combining the price relatives at the elementary aggregate level and for combining the indices to derive higher level indices. Though the weights are important, any small error in the weight will not affect the index as much as error of comparable magnitude in the prices .As such prices are more important for the accuracy and credibility of the CPI indices. A brief account of price collection in the context of CPI compilation in select countries is given at Annexure VI.

CHAPTER V

INTERNATIONAL PRACTICES, CONVENTIONS, DECISIONS AND RESOLUTION

International Practices

Introduction

5.1 The purpose of this section is to provide a general description of the ways in which consumer price indices (CPIs) are calculated in practice. The methods used in different countries are not exactly the same but they have much in common. There is clearly interest from both compilers and users of CPIs in knowing how most statistical offices actually set about calculating their CPIs.

5.2 As a result of the greater insights into the properties and behaviour of price indices that have been achieved in recent years, it is now recognized that some traditional methods may not necessarily be optimal from a conceptual and theoretical viewpoint. Concerns have also been voiced in a number of countries about possible biases that may be affecting CPIs. Of course, the methods used to compile CPIs are inevitably constrained by the resources available, not merely for collecting and processing prices, but also for gathering the expenditure data needed for weighting purposes. In some countries, the methods used may be severely constrained by lack of resources.

5.3 In different countries the calculation of a consumer price index (CPI) proceeds in two or more stages. In the first stage of calculation elementary price indices are estimated for the elementary expenditure aggregates of a CPI. In the second and subsequent stages these elementary price indices are combined to obtain higher-level indices using information on the expenditures on each of the elementary aggregates as weights.

Construction of Elementary Aggregates

5.4 Elementary aggregates are groups of relatively homogeneous goods and services. They may cover the whole country or separate regions within the country. Likewise, elementary aggregates may be distinguished for different types of outlets. The nature of the elementary aggregates depends on circumstances and the availability of information. Elementary aggregates may therefore, be defined differently in different countries. Some key points, however, should be noted:-

- Elementary aggregates should consist of groups of goods or services that are as similar as possible, and preferably fairly homogeneous.
- They should also consist of items that may be expected to have similar price movements. The objective should be to minimise the dispersion of price movements within an elementary aggregate.
- The elementary aggregates should be appropriate to serve as strata for sampling purposes in the light of the sampling regime planned for the data collection.

5.5 Each elementary aggregate whether relating to the whole country or an individual region or group of outlets, will typically contain a very large number of individual goods or services or items. In practice, only a small number of items can be selected for pricing. When selecting the items for pricing, the following considerations need to be taken into account:

- The items selected should be ones for which price movements are believed to be representative of all the products within the elementary aggregate.
- The number of items within each elementary aggregate for which prices are collected, should be large enough for the estimated price index to be statistically reliable. The

minimum number required will vary between elementary aggregates depending on the nature of the products and their price behaviour.

- The objective is to track the price of the same item over time for as long as possible or as long as the item continues to be representative. The items selected should therefore, be ones that are expected to remain in the market for some time so that like can be compared with like.

Aggregation Structure

5.6 Using a classification of consumers' expenditures such as the Classification of Individual Consumption according to Purpose (COICOP), the entire set of consumption goods and services covered by the overall CPI can be divided into groups such as 'food and non-alcoholic beverages'. Each group is further divided into classes such as 'food'. For CPI purposes each class can then be further divided into homogeneous sub-classes such as 'rice'. The sub-classes are the equivalent of the basic headings used in the International Comparison Program (ICP) which calculates purchasing power parities (PPPs) between countries. Finally, the sub-class may be further sub-divided to obtain the elementary aggregates by dividing according to region or type of outlet. In some cases a particular sub-class cannot be or does not need to be further subdivided, in which case the sub-class becomes the elementary aggregate. Within each elementary aggregate, one or more items are selected to represent all the items in the elementary aggregate. For example, the elementary aggregate consisting of rice sold in supermarkets in the northern region covers all types of rice, from which parboiled white rice and brown rice with over 50 per cent broken grains are selected as representative items. Of course, more representative items might be selected in practice. Finally, for each representative item a number of specific products can be selected for price collection such as particular brands of parboiled rice. Again, the number of sampled products selected may vary depending on the nature of the representative product.

5.7 Working upwards from the elementary price indices, all indices above the elementary aggregate level are higher-level indices that can be calculated from the elementary price indices using the elementary expenditure aggregates as weights. The aggregation structure should be consistent so that the weight at each level above the elementary aggregate, is always equal to the sum of weights of its components. The price index at each higher level of aggregation can be calculated on the basis of the weights and price indices for its components, that is, the lower level or elementary indices. The individual elementary price indices are not necessarily sufficiently reliable to be published separately but they remain the basic building blocks of all higher-level indices.

Weights within Elementary Aggregates

5.8 In most cases, the price indices for elementary aggregates are calculated without the use of explicit expenditure weights. However, weights whenever possible, should be used that reflect the relative importance of the sampled items, even if the weights are only approximate. Often, the elementary aggregate is simply the lowest level at which reliable weighting information is available. In this case, the elementary index has to be calculated as an unweighted average of the prices of which it consists. Even in this case, however, it should be noted that when the items are selected with probabilities proportional to the size of some relevant variable such as sales, weights are implicitly introduced by the sampling selection procedure.

5.9 For certain elementary aggregates, information about sales of particular items, market shares and regional weights may be used as explicit weights within an elementary aggregate. Weights within elementary aggregates may be updated independently and possibly more often than the elementary aggregates themselves (which serve as weights for the higher-level indices). For example, assume that the number of suppliers of a certain product such as fuel for cars is limited. The market shares of the suppliers may be known from business survey statistics and can be used as weights in the calculation of an elementary aggregate price index for car fuel. Prices for water may be collected from a number of local water supply services where the population in each local region is known. The relative size of the population in each region may then be used as a

proxy for the relative consumption expenditures to weight the price in each region to obtain the elementary aggregate price index for water.

5.10 A special situation occurs in the case of tariff prices. A tariff is a list of prices for the purchase of a particular kind of good or service under different terms and conditions. One example is electricity, where one price is charged during daytime while a lower price is charged at night. Similarly, a telephone company may charge a lower price for a call at the weekend than in the rest of the week. Another example may be bus tickets sold at one price to ordinary passengers and at lower prices to children or old age pensioners. In such cases, it is appropriate to assign weights to the different tariffs or prices in order to calculate the price index for the elementary aggregate.

5.11 The increasing use of electronic points of sale in many countries, in which both prices and quantities are scanned as the purchases are made, means that valuable new sources of information may become increasingly available to statistical offices. This could lead to significant changes in the ways in which price data are collected and processed for CPI purposes.

Computing Elementary Price Indices

5.12 An elementary price index is the price index for an elementary aggregate. The aggregates covered by a CPI or a producer price index (PPI) are usually arranged in the form of a tree-like hierarchy such as the Classification of Individual Consumption according to Purpose (COICOP). Any aggregate is a set of economic transactions pertaining to a set of commodities over a specified time period. Every economic transaction relates to the change of ownership of a specific, well-defined commodity (good or service) at a particular place and date, and comes with a quantity and a price. The price index for an aggregate is calculated as a weighted average of the price indices for the sub-aggregates, the weights (expenditure or sales) and type of average being determined by the index formula. One can descend in such a hierarchy as far as available information allows the weights to be decomposed. The lowest-level aggregates are called elementary aggregates. They are basically of two types:-

- those for which all detailed price and quantity information is available;
- those for which the statistician, considering the operational cost or the response burden of getting detailed price and quantity information about all the transactions, decides to make use of a representative sample of commodities or respondents.

Since the elementary aggregates form the building blocks of a CPI or a PPI, the choice of an inappropriate formula at this level can have a tremendous impact on the overall index.

Weighting representative items

5.13 There is a wide range of possibilities, varying from case to case, as to whether it may be both possible and sensible in effect to divide the weight of an elementary aggregate between the groups of items composing it, each represented by one representative item. Similarly, the weight might be divided between the zones within each region for which prices are obtained.

5.14 Most often there will not be enough information for weights to be attached to the various individual representative items selected to represent a composite item or to the zones, so they will have to be given equal weights. Occasionally, however, some approximate weighting may be possible using information about sales of sub-categories for each of which one or more of these representative items has been selected. For example, if one cow's milk cheese and another goat's milk cheese have been specified as representative items within the one composite item of 'Cheese', and if cow's milk cheese sales are known to be approximately twice that of goat's milk cheese, then one representative item could be given a double weight in calculating elementary aggregate indices for cheese. Such weighting may use later information than for the weight reference period. Of course, the weight used for elementary aggregate which they jointly represent, must always equal to its estimated share in the weight reference period consumption of the reference population. Any such approximate weighting of the representative items within an elementary aggregate might not be feasible and furthermore, might create too much complexity if

it was attempted separately for each zone. It is perhaps better to use regional or even national information about the market shares of different sub-categories to weight their representative items uniformly within all elementary aggregates where these centrally determined weights are not obviously inappropriate.

Relative of means versus mean of relatives

5.15 The discussion of the computation of elementary aggregate indices simplifies by assuming that no weights are available within an elementary aggregate. Table 1 shows, by means of a numerical example, four ways of computing an elementary aggregate index, each of which may be applied either using arithmetic means or using geometric means. It makes three points clear for the simple case where there are neither any missing observations nor any substitutions:-

- Since the prices in month 5 are exactly the same as in month 0, the index for month 5 should by 100. But this does not happen in one of the eight calculations. The chained arithmetic mean of month–to–month price relatives, however, comes out at 106.14 in month 5. Indeed, this product of sequence of month–to–month arithmetic means of price relatives starting in the price reference period and ending in the current month will necessarily exceed the directly calculated current to reference period arithmetic mean if movements of relative prices within the sequence of months are wholly or partly reversed before the end of it. Hence, it is not to be recommended.
- The four methods using geometric means yield identical results.
- The accumulation of month–to–month relatives of mean price yields the same result as relating the current mean price to the reference period mean price.

5.16 The most common methods hitherto used in practice are:-

A – the current to price reference period relative of arithmetic mean price.

R – the arithmetic mean of current to price reference period price relatives.

Let 0 be the price reference month and t be the current month. Let there be n prices. Then,

$$A = \frac{\frac{1}{n}\sum_{n} P_t}{\frac{1}{n}\sum_{n} P_o} \qquad R = \frac{1}{n}\sum_{n}\frac{P_t}{P_o}$$

Let r be an individual t/o price relative so that $P_t = P_o \times r$. This gives the alternative formation:-

$$A = \frac{\frac{1}{n}\sum_{n} P_o . r}{\frac{1}{n}\sum_{n} P_o} \qquad R = \frac{1}{n}\sum_{n} r$$

Thus, the difference between the two is that in R all the rs are equally weighted whereas in A they are price-weighted; the costlier goods in period 0 have bigger weights. If all goods had identical prices in period 0, then there would be no difference. If all the rs were the same result would again be A = R. But A and R will be different when neither of these conditions is fulfilled, i.e. when in period 0 prices are not all the same and when some prices change proportionately more than others from period 0 to period t.

5.17 In the light of this difference there is a choice to be made. There are advantages that arise from having average sample prices for elementary aggregates. In the case of reasonably

homogeneous composite items, average prices provide price-level data which are useful for other purposes, including international price comparisons. Their publication also allows the public to appreciate the reliability of the index. They can often be compared with price data from other sources, thus facilitating a check. But even if average prices are used in these ways, it is nevertheless possible, with the use of a computer at negligible extra cost, to calculate means of price relatives as well for use in the actual index computation. Conversely, even if mean prices are used to calculate the index, price relatives can easily be computed in order to facilitate the picking out of possibly erroneous price observations. The following points are thus, limited to index computation:-

- A attaches equal probability to each physical unit, i.e. to each price, while R attaches equal probability to each monetary unit of expenditure. So if the structure of the sample precisely reflected the structure of the universe with respect to quantities, A would be appropriate, whereas if it is reflected with respect to expenditures, R would be appropriate. But in most cases, with purposive sampling, it will not be possible to say whether either of these conditions is even approximately fulfilled.
- The relationship between A and R and the unknown weighted index which could be calculated if the weights were known, can be shown to depend first, upon the correlations between the rs and the weights and between the rs and period 0 prices and second, upon the dispersions of weights and period 0 prices. The demonstration relates to the universe and some of the propositions about these correlations which may be suggested, may be implausible in relation to the sample. But perhaps the following argument does apply to the sample.
- Where the sampled goods or services representing an elementary aggregate are fairly homogeneous, there is normally a tendency in the short term for high prices to come down (or rise less than other prices) and vice versa, i.e. a negative correlation between r and P_0. This is because the prices which diverge a lot from the mean, often move back towards it. Hence, there is a tendency for lower rs to have bigger weights, raising R relative to A.
- Matched samples have to be updated from time to time, as varieties or outlets disappear or change in importance. This entails linking the elementary aggregate index estimated from the new sample with that estimated from the old sample. The use of the non-transitive arithmetic mean of price relatives can then introduce an upward bias.
- The use of arithmetic mean prices for calculating a price relative does not necessarily imply that all such mean prices are useful or interesting in themselves. Comparing averages of the prices of hairbrushes and combs at two points of time, for example, is one legitimate way of calculating an index even though each of the two averages by itself makes no sense.

Table 1. Different methods of calculating an elementary aggregate index in the absence of weights

Simple case with on missing observations or substitution

Month	**0**	**1**	**2**	**3**	**4**	**5**
Prices						
Variety A	5.00	6.00	5.00	5.00	4.50	5.00
Variety B	4.00	5.00	6.00	7.00	7.00	4.00
Variety C	8.00	7.00	9.00	9.00	8.00	8.00
Variety D	6.00	6.50	7.00	7.50	8.00	6.00
Arithmetic mean	5.75	6.13	6.75	7.13	6.88	5.75
Geometric mean	5.57	6.08	6.59	6.97	6.70	5.57
Period–to–period relatives of mean prices						
Arithmetic mean	100.00	106.52	110.20	105.56	96.49	83.64
Chained	100.00	106.52	117.39	123.91	119.57	100.00
Geometric mean	100.00	109.20	108.48	105.74	96.11	83.07
Chained	100.00	109.20	118.45	125.25	120.38	100.00
Current to reference period relatives of mean prices						
Arithmetic mean (Method **A**)	100.00	106.52	117.39	123.91	119.57	100.00
Geometric mean	100.00	109.20	118.45	125.25	120.38	100.00
Period–to–period relatives						
Variety A	100.00	120.00	83.33	100.00	90.00	111.11
Variety B	100.00	125.00	120.00	116.67	100.00	57.14
Variety C	100.00	87.50	128.57	100.00	88.89	100.00
Variety D	100.00	108.33	107.69	107.14	106.67	75.00

Arithmetic mean	100.00	110.21	109.90	105.95	96.39	85.81
Chained	100.00	110.21	121.12	128.33	123.69	106.14
Geometric mean	100.00	109.20	108.47	105.74	96.11	83.07
Chained	100.00	109.20	118.45	125.25	120.38	100.00
Current to reference period relatives						
Variety A	100.00	120.00	100.00	100.00	90.00	100.00
Variety B	100.00	125.00	150.00	175.00	175.00	100.00
Variety C	100.00	87.50	112.50	112.50	100.00	100.00
Variety D	100.00	108.33	116.67	125.00	133.33	100.00
Arithmetic mean (Method **R**)	100.00	110.21	119.79	128.13	124.58	100.00
Geometric mean	100.00	109.20	118.45	125.25	120.38	100.00

Finally, there is the question whether geometric means rather than arithmetic means should be used. Table 2 provides a numerical example of their use. They have one great advantage:-

The geometric mean of the price relatives = The relative of the geometric mean prices

5.18 In view of this superiority, it is not surprising that many statisticians regard the use of geometric means as the best solution but these are seldom used. One reason is that they make the calculations difficult but this argument loses its validity once computers are used for calculating the index. A second reason is that it may be feared that their use is too difficult to explain to users of the index. But most indices have features which are difficult to explain and in any case, the degree of complexity that is acceptable, is growing through time in most countries. Statisticians should have the courage of their convictions.

5.19 It should be noted that the issue of the use of geometric means is relevant only to the computation of elementary aggregate indices and not to their combination into group indices and the all-items index. The elementary aggregate indices are computed using only a sample of prices to provide an estimate of the price evolution for the whole of the expenditure included in that elementary aggregate. Once they have been computed, no more sampling is involved. Elementary aggregate expenditures are additive, so the weighted arithmetic mean of a number of elementary aggregate indices gives the evolution of the cost of the reference period basket defined as the sum of those elementary aggregates. A weighted geometric mean of the elementary aggregate indices would not have a similarly clear meaning.

Table 2. Sample worksheet for geometric mean calculation of an elementary aggregate index

Item code	Ref. Price	Jan.	Price Rel.	Jan.	Feb.	Price Rel.	Feb.	Mar.	Price Rel.	Mar.	Apr.	Price Rel.	Apr.	May	Price Rel.
H/214	2.89	2.89	1.000	2.89	2.98	1.031	2.98	2.98	1.000	2.98	2.98	1.000	-	-	
H/321	2.89	2.89	1.000	2.89	2.89	1.000	2.89	2.89	1.000	2.89	-		3.00	2.89	0.965
H/304	3.00	3.10	1.033	3.10	3.10	1.000	3.10	3.15	1.016	-	-		-	-	
H/293	3.20	3.20	1.000	3.20	3.15	0.984	3.15	3.20	1.016	3.20	3.30	1.031	3.30	3.30	1.000
H/169	3.25	3.25	1.000	3.25	3.30	1.015	3.30	3.30	1.000	3.30	3.40	1.030	3.40	3.40	1.000
G/005					3.20		3.20	3.20	1.000	3.20	3.35	1.047	3.35	(4.80)	
H/229										3.25	3.50	1.077	3.50	3.70	1.057
Product of relatives			1.033			1.030			1.032			1.197			1.020
N = no. of relatives			5			5			6			5			4
Geometric mean relatives			1.007			1.006			1.005			1.037			1.005

G/005 First recorded in February.

H/321 Temporary unavailable in April, price imputed for May- April comparison as March times price April- March mean relative of 1.037.

H/214 Outlet closed down after April.

H/229 Substituted for H/229 in April, no overlap; Quality judged to be about 10 % superior so March price imputed for H/229.

G/005 Price implausibly high in May, so omitted from calculation.

Missing observations

5.20 When an individual observation is unavoidably missing, the calculations should omit the corresponding price from the data set with which current prices are compared so that like is compared with like. In other words, the two sets of prices must be "matched". However, matching can also be achieved by using an imputed price, calculated in one of the following three ways:-

by carrying forward the previous observation, thus assuming no price change, the simplest procedure which is clearly acceptable only when there is not much inflation;

by assuming that the price would have moved in the same proportion as those prices within the elementary aggregate which were recorded;

a missing price may be imputed by using an observation from another, similar outlet which is not included in the regular price collection.

The third method is illustrated in Table 3.

5.21 The first method is clearly inappropriate when prices are rising fast. All three methods are likely to impart a downward bias to a rent index since it is commonly the case that rents increase most upon a change of tenancy and such a change may involve a temporary vacancy and hence, a missing observation.

5.22 When a whole set of prices is missing because they are collected less frequently than the majority of prices, similar possibilities are open. Obviously, no sub-index for the subgroup including them should be published for these months.

Table 3. Price imputation for temporary missing observations

Month	**0**	**1**	**2**	**3**	**4**	**5**
Prices						
Variety A	5.00	6.00	5.00	5.50		5.00
Variety B	4.00	5.00	6.00	7.00	7.00	4.00
Variety C	8.00	7.00	9.00	9.00	8.00	8.00
Variety D	5.48	6.50		7.50	8.00	5.48
Price relatives						
Variety A	100.00	120.00	100.00	110.00		100.00
Variety B	100.00	125.00	150.00	175.00	175.00	100.00
Variety C	100.00	87.50	112.50	112.50	100.00	100.00
Variety D	100.00	118.61		136.86	145.99	100.00
Index of arithmetic mean prices						
A, B, C mean price		6.00	6.67			
B, C, D mean price				7.83	7.67	
	Impute price of D in Month 2 as 6.67/6.00 x 6.50 = 7.23					
	Impute price of A in Month 4 as 7.67/7.83 x 5.50 = 5.39					
A, B, C, D mean price	5.62	6.13	6.81	7.25	7.10	5.62
Index	100.00	108.99	121.11	129.001	126.29	100.00

Index of arithmetic mean of relatives

A, B, C mean price			120.83			
B, C, D mean price					140.33	
	Impute 120.83 to D in Month 2 and 140.33 to A in Month 4					
Index	100.00	112.78	120.83	133.59	140.33	100.00

Index of geometric mean prices = Geometric mean of relatives

A, B, C mean price		5.94	6.46			
B, C, D mean price				7.79	7.65	
	Impute price of D in Month 2 as 6.46/5.94 x 6.50 =7.07					
	Impute price of A in Month 4 as 7.65/7.79 x 5.50 =5.40					
A, B, C, D mean price	5.44	6.08	6.61	7.14	7.01	5.44
Index	100.00	111.70	121.47	131.21	128.88	100.00

In the absence of inflation, the D price of 6.50 and the A price of 5.50 could, alternatively, be carried forward to Months 2 to 4.

INTERNATIONAL LABOUR CONFERENCE

Conventions concerning Labour Statistics relevant to CPI

*****
******
******

Consumer Price Index

A general consumer price index should be computed and published for significant population groups or for the total population, covering all groups of consumption items.

Consumer price indices should be published separately for important groups of consumptions items such as food, drink and tobacco; clothing and footwear; housing; fuel and lighting; and other significant categories.

The consumer price indices should be computed and published if possible, once a month but at least once every three months.

The weights used to compute the consumer price indices should be reviewed at least once every ten years and adjusted when significant changes in the consumption patterns are revealed.

The prices used to compute the consumer price indices should be representative of the respective purchasing habits (for example, outlets and the nature and quality of articles) of the population groups concerned.

Statistics of Household Expenditure and Household Income

(i) Statistics of household expenditure or where appropriate, family expenditure and where possible, household income or where appropriate, family income should be compiled at least once every ten years.

(ii) These statistics should provide, inter-alia, in respect of households or families as the case may be :-

detailed data on expenditure;

where possible, detailed data on income according to level and source of income;

detailed data on their composition according to sex, age group and their significant characteristics of their members; and

data on expenditure and where possible, income classified according to their size and type, expenditure class and where possible, income class.

RESOLUTION CONCERNING CONSUMER PRICE INDICES

Preamble

5.23 The Seventeenth International Conference of Labour Statisticians was at Geneva by the Governing Body of the ILO during 24 November to 3 December, 2003. The Conference recalled the resolution adopted by the Fourteenth International Conference of Labour Statisticians concerning consumer price indices and on recognizing the continuing validity of the basic principles, recommended the fact that the consumer price index (CPI) is designed primarily to measure the changes over time in the general level of prices of goods and services that a reference population acquires, uses or pays for consumption. The Conference recognizing the need to modify and broaden the existing standards in the light of recent methodological and computational developments to enhance the usefulness of the international standards in the provision of technical guidelines to all countries, the usefulness of such standards in enhancing the international comparability of the statistics,

- that the CPI is used for a wide variety of purposes and that governments should be encouraged to identify the (priority) purposes a CPI is to serve, to provide adequate resources for its compilation and to guarantee the professional independence of its compilers,
- that the (priority) objectives and uses of CPI differ among countries and that therefore, a single standard could not be applied universally;
- that the CPI needs to be credible to observers and users, both national and international, and that better understanding of the principles and procedures used to compile the index will enhance the users' confidence in the index,

agrees that the principles and methods used in constructing a CPI should be based on the guidelines and methods that are generally accepted as constituting good statistical practices; and adopts, this third day of December 2003, the following resolution which replaces the previous one adopted in 1987.

The nature and meaning of a Consumer Price Index

5.24 The CPI is a current social and economic indicator that is constructed to measure changes over time in the general level of prices of consumer goods and services that households acquire, use or pay for consumption.

5.25 The index aims to measure the change in consumer prices over time. This may be done by measuring the cost of purchasing a fixed basket of consumer goods and services of constant quality and similar characteristics, with the products in the basket being selected to be representative of households' expenditure during a year or other specified period. Such an index is called a fixed-basket price index.

5.26 The index may also aim to measure the effects of price changes on the cost of achieving a constant standard of living (i.e. level of utility or welfare). This concept is called a cost-of-living index (COLI). A fixed basket price index or another appropriate design may be employed as an approximation to a COLI.

The uses of a Consumer Price Index

5.27 The CPI is used for a wide variety of purposes, the two most common ones being: (i) to adjust wages as well as social security and other benefits to compensate, partly or completely, for changes in the cost of living or in consumer prices; and (ii) to provide an average measure of price inflation for the household sector as a whole, for use as a macro-economic indicator. CPI subindices are also used to deflate components of household final consumption expenditure in the national accounts and the value of retail sales to obtain estimates of changes in their volume.

5.28 CPIs are also used for other purposes such as monitoring the overall rate of price inflation for all sectors of the economy, the adjustment of government fees and charges, the adjustment of payments in commercial contracts, and for formulating and assessing fiscal and monetary policies and trade and exchange rate policies. In these types of cases, the CPI is used as more appropriate measures do not exist at present or because other characteristics of the CPI (e.g. high profile, wide acceptance, predictable publication schedule, etc.) are seen to outweigh any conceptual or technical deficiencies.

5.29 Given that the CPI may be used for many purposes, it is unlikely that one index can perform equally satisfactorily in all applications. It may therefore be appropriate to construct a number of alternative price indices for specific purposes, if the requirements of the users justify the extra expense. Each index should be properly defined and named to avoid confusion and a 'headline' CPI measure should be explicitly identified.

5.30 Where only one index is compiled, it is the main use that should determine the type of index compiled, the range of goods and services covered, its geographic coverage, the households it relates to, as well as to the concept of price and the formula used. If there are several major uses, it is likely that compromises may have to be made with regard to how the CPI is constructed. Users should be informed of the compromises made and of the limitations of such an index.

Scope of the Index

5.31 The scope of the index depends on the main use for which it is intended, and should be defined in terms of the type of households, geographic areas, and the categories of consumer goods and services acquired, used or paid for by the reference population.

5.32 If the primary use of the CPI is for adjusting money incomes, a relevant group of households such as wage and salary earners, may be the appropriate target population. For this use, all consumption expenditures by these households at home and abroad may be covered. If the primary use of the CPI is to measure inflation in the domestic economy, it may be appropriate to cover consumption expenditures made within the country, rather than the expenditures of households resident within the country.

5.33 In general, the reference population for a national index should be defined very widely. If any income groups, types of households or particular geographic areas are excluded for cost or practical considerations, then this should be explicitly stated.

5.34 The geographic scope refers to the geographic coverage of price collection and of consumption expenditure of the reference population and both should be defined as widely as possible, and preferably consistently. If price collection is restricted to particular areas due to resource constraints, then this should be specified. The geographic coverage of the consumption expenditure may be defined either as covering consumption expenditure of the resident population (resident consumption) or consumption expenditure within the country (domestic consumption).

5.35 Significant differences in the expenditure patterns and/or price movements between specific population groups or regions may exist, and care should be taken to ensure that they are represented in the index. Separate indices for these population groups or regions may be computed if there is sufficient demand to justify the additional cost.

5.36 In accordance with its main purpose, the CPI should conceptually cover all types of consumer goods and services of significance to the reference population without any omission of those that may not be legally available or may be considered socially undesirable. Where appropriate, special aggregates may be constructed to assist those users who may wish to exclude certain categories of goods or services for particular applications or

for analysis. Whenever certain goods or services have been excluded from the index, this should be clearly documented.

5.37 Goods and services purchased for business purposes, expenditures on assets such as works of art, financial investment (as distinct from financial services) and payments of income taxes, social security contributions and fines are not considered to be consumer goods or services and should be excluded from the coverage of the index. Some countries regard expenditures on the purchase of houses entirely as a capital investment and, as such, exclude them from the index.

Acquisition, Use or Payment

5.38 In determining the scope of the index, the time of recording and valuation of consumption, it is important to consider whether the purposes for which the index is used are best satisfied by defining consumption in terms of "acquisition", "use", or "payment". The "acquisition" approach is often used when the primary purpose of the index is to serve as a macroeconomic indicator. The "payment" approach is often used when the primary purpose of the index is for the adjustment of compensation or income. Where the aim of the index is to measure changes in the cost of living, the "use" approach may be most suitable. The decision regarding the approach to follow for a particular group of products should in principle be based on the purpose of the index as well as on the costs and the acceptability of the decision to the users who should be informed of the approach followed for different products. Because of the practical difficulties in uniformly defining consumption and estimating the flow of services provided by other durable goods in terms of "use", it may be necessary to adopt a mixed approach, e.g. "use" for owner-occupied housing and "acquisition" or "payments" basis for other consumer durables.

5.39 The differences between the three approaches are most pronounced in dealing with products for which the times of acquisition, use and payment do not coincide such as owner-occupied housing, durable goods and products acquired on credit.

5.40 The most complex and important of the products mentioned above, is owner-occupied housing. In most countries, a significant proportion of households are owner-occupiers of their housing, with the housing being characterized by a long useful life and a high purchase outlay (price). Under the "acquisition" approach, the value of the new dwellings acquired in the weights reference period may be used for deriving the weight (and the full price of the dwelling is included in the CPI at the time of acquisition, regardless of when the consumption is taking place). Under the "payment" approach, the weights reflect the amounts actually paid out for housing (and the prices enter the CPI in the period(s) when the prices are paid). Under the "use" approach the weights are based on the value of the flow of housing services consumed during the weights reference period estimated using an implicit or notional cost (and prices or estimated opportunity costs enter the CPI when the consumption is taking place). Own-account consumption, remuneration in kind and/or goods and services provided without charge or subsidized by governments and non-profit institutions serving households may be important in some countries where the purpose of the index is best satisfied by defining consumption in terms of "use" or "acquisition" (under the payment approach these are out of scope). The inclusion of these products will require special valuation and pricing techniques.

Basket and Weights

5.41 Decisions on the composition of the basket and the weights follow directly from the scope, as well as from the choice between the "acquisition", "use" or "payment" approaches. For terminology and definitions of various terms refer to Annexure VII.

5.42 Once defined, the expenditures that fall within the scope of the index should be grouped into similar categories in a hierarchical classification system, e.g. divisions/groups/classes, for compilation as well as analytical purposes. There should be consistency between the classification used for index compilation and the one used for

household expenditure statistics. The CPI classification should meet the needs of users for special subindices. For the purposes of international comparisons the classification should also be reconcilable with the most recent version of the UN *Classification of Individual Consumption according to Purpose* (Annexure VIII) at least at its division level.

5.43 In order to facilitate the analysis and interpretation of the results of the index, it may be desirable to classify goods and services according to various supplementary classifications, e.g. source of origin, durability and seasonality. Calculation of the CPI by using various classifications, should generate the same overall results as the original index.

5.44 The classification should also provide a framework for the allocation of expenditure weights. Expenditures at the lowest level of the classification system, expressed as a proportion of the total expenditure, determine the weights to be used at this level. When the weights are to remain fixed for several years, the objective should be to adopt weights that are representative of the contemporary household behaviour.

5.45 The two main sources for deriving the weights are the results from household expenditure surveys (HESs) and national accounts estimates on household consumption expenditure. The results from an HES are appropriate for an index defined to cover the consumption expenditures of reference population groups resident within the country, while national accounts estimates are suitable for an index defined to cover consumption expenditures within the country. The decision about what source or sources to use and how they should be used, depends on the main purpose of the index and on the availability and quality of appropriate data.

5.46 The information from the main source (HESs or national accounts) should be supplemented with all other available information on the expenditure pattern. Sources of such information that can be used for disaggregating the expenditures, are surveys of sales in retail outlets, point-of-purchase surveys, surveys of production, export and import data and administrative sources. Based on these data, the weights for certain products may be further disaggregated by region and type of outlet. Where the data obtained from different sources relate to different periods, it is important to ensure, before weights are allocated, that expenditures are adjusted so that they have the same reference period.

5.47 Where the weight reference period differs significantly from the price reference period, the weights should be price updated to take account of price changes between the weights reference period and price reference period. Where it is likely that price updated weights are less representative of the consumption pattern in the price reference period this procedure, may be omitted.

5.48 Weights should be reviewed and if appropriate, revised as often as accurate and reliable data are available but at least once every five years. Revisions are important to reduce the impact on the index of product substitutions and to ensure the basket of goods and services and their weights remain representative. For some categories, it may be necessary to update the weights more frequently as such weights are likely to become out of date more quickly than higher-level weights. In periods of high inflation, the weights should be updated frequently.

5.49 When a new basket (structure or weights) replaces the old, a continuous CPI series should be created by linking together the index numbers based on the new basket of goods and services to those based on the earlier basket. The particular procedure used to link index number series will depend on the particular index compilation technique used. The objective is to ensure that the technique used to introduce a new basket does not, of itself, alter the level of the index.

5.50 Completely new types of goods and services (i.e. goods and services that cannot be classified to any of the existing elementary aggregates) should normally be considered for inclusion only during one of the periodic review and reweighting exercises. A new model or variety of an existing product that can be fitted within an

existing elementary aggregate, should be included at the time it is assessed as having a significant and sustainable market share. If a quality change is detected, an appropriate quality adjustment should be made.

5.51 Some products such as seasonal products, insurance, second-hand goods, expenditure abroad, interest, own production, expenditures on purchase and construction of dwellings, etc., may need special treatment when constructing their weights. The way these products are dealt with, should be determined by the main purpose of the index, national circumstances and the practicalities of compilation.

5.52 Seasonal products should be included in the basket. It is possible to use: (i) a fixed weight approach which uses the same weight for the seasonal product in all months using an imputed price in the out-of-season months; or (ii) a variable weights approach where a changing weight is attached to the product in various months. The decision on the approach should be based on national circumstances.

5.53 The expenditure weights for second-hand goods should be based either on the net expenditure of the reference population on such goods or the gross expenditure, depending on the purpose of the index.

5.54 When consumption from own production is within the scope of the index, the weights should be based on the value of quantities consumed from own production. Valuation of consumption from own production should be made on the basis of prices prevailing in the market, unless there is some reason to conclude that market prices are not relevant or cannot be reliably observed or there is no interest in using hypothetically imputed prices. In this case the expenditures and prices for the inputs into the production of these goods and services, could be used instead. The third option is to valuate it by using quality adjusted market prices.

Sampling for Price Collection

5.55 A CPI is an estimate based on a sample of households to estimate weights, and a sample of zones within regions, a sample of outlets, a sample of goods and services and a sample of time periods for price observation.

5.56 The sample size and sample selection methods for both the outlets and the goods and services for which price movements over time are to be observed, should ensure that the prices collected are representative and sufficient to meet the requirements for the accuracy of the index, but also that the collection process is cost-effective. The sample of prices should reflect the importance, in terms of relative expenditures, of the goods and services available for purchase by consumers in the reference period, the number, types and geographic spread of outlets that are relevant for each good and service, and the dispersion of prices and price changes across outlets.

5.57 Probability sampling techniques are the preferred methods, in principle, as they permit sound statistical inference and control over the representativity of the sample. In addition, they permit estimation of sampling variation (errors). However, they may be costly to implement and can result in the selection of products that are very difficult to price to constant quality.

5.58 In cases where appropriate sampling frames are lacking and it is too costly to obtain them, samples of outlets and products have to be obtained by non-probability methods. Statisticians should use the available information and apply their best judgment to ensure that representative samples are selected. The possibility of applying cut-off or detailed quota sampling strategy may be considered, especially where the sample size is small. A mixture of probability and non-probability sampling techniques may be used.

5.59 Efficient and representative sampling, whether random or purposive, requires comprehensive and up-to-date sampling frames for outlets and products. Sample selection can be done either by head office from centrally held sampling frames or in the field by price collectors or by a mixture of the two. In the first case, price collectors should be given precise instructions on which outlets to visit and which products to price. In the second case, price collectors should be given detailed and unambiguous guidelines on the local sampling procedures to be

adopted. Statistical business registers, business telephone directories, results from the point-of-purchase surveys or from surveys of sales in different types of outlets, and lists of Internet sellers may be used as sampling frames for the central selection of outlets. Catalogues or other product lists drawn up by major manufacturers, wholesalers or trade associations or lists of products that are specific to individual outlets such as large supermarkets might be used as the sampling frame for selection of products. Data scanned by bar-code readers at the cashier's desk (electronic databases) can be particularly helpful in the selection of goods and services.

5.60 The sample of outlets and of goods and services should be reviewed periodically and updated where necessary to maintain its representativeness.

Index Calculation

5.61 The compilation of a CPI consists of collecting and processing price and expenditure data according to specified concepts, definitions, methods and practices. The detailed procedures that are applied, will depend on particular circumstances.

5.62 CPIs are calculated in steps. In the first step, the elementary aggregate indices are calculated. In the subsequent steps, higher level indices are calculated by aggregating the elementary aggregate indices.

Elementary Aggregate Indices

5.63 The elementary aggregate is the smallest and relatively homogeneous set of goods or services for which expenditure data are defined (used) for CPI purposes. It is the only aggregate for which an index number is constructed without any explicit expenditure weights, although other kinds of weights might be explicitly or implicitly introduced into the calculation. The set of goods or services covered by an elementary aggregate should be similar in their end-uses and are expected to have similar price movements. They may be defined not only in terms of their characteristics but also in terms of the type of location and outlet in which they are sold. The degree of homogeneity achieved in practice will depend on the availability of corresponding expenditure data.

5.64 An elementary index is a price index for an elementary aggregate. As expenditure weights usually cannot be attached to the prices or price relatives for the sampled products within the elementary aggregate, an elementary index is usually calculated as an unweighted average of the prices or price relatives. When some information on weights is available, this should be taken into account when compiling the elementary indices.

5.65 There are several ways in which the prices or the price relatives might be averaged. The three most commonly used formulae are the ratio of arithmetic mean prices (RAP), the geometric mean (GM) and the arithmetic mean of price relatives (APR). The choice of formula depends on the purpose of the index, the sample design and the mathematical properties of the formula. It is possible to use different formulae for different elementary aggregates within the same CPI. It is recommended that the GM formula be used, particularly where there is a need to reflect substitution within the elementary aggregate or where the dispersion in prices or price changes within the elementary aggregate is large. The GM has many advantages because of its mathematical properties. The RAP may be used for elementary aggregates that are homogeneous and where consumers have only limited opportunity to substitute or where substitution is not to be reflected in the index. The APR formula should be avoided in its chained form, as it is known to result in biased estimates of the elementary indices.

5.66 The elementary index may be computed by using either a chained or direct form of the formula chosen. The use of a chained form may make the estimation of missing prices and the introduction of replacement products easier.

Upper Level Indices

5.67 These price indices are constructed as weighted averages of elementary aggregate indices. Several types of formulae can be used to average the elementary aggregate indices. In order to compile a timely index, the practical option is to use a formula that relies on the weights relating to some past period. One such formula is the Laspeyres-type index, the formula used by most national statistical agencies.

5.68 For some purposes it may be appropriate to calculate the index retrospectively by using an index number formula that employs both base-period weights and current-period weights, such as the Fisher, Törnqvist or Walsh index. Comparing the difference between the index of this type and the Laspeyres-type index, can give some indication of the combined impact of income changes, preference changes and substitution effects over the period in question, providing important information for producers and users of the CPI.

5.69 Where the change in an upper level index between two consecutive periods such as *t*-1 and *t* is calculated as the weighted average of the individual indices between *t*-1 and *t*, care should be taken to ensure that the weights are updated to take account of the price changes between the price reference period 0 and the preceding period *t*-1. Failure to do so may result in a biased index.

Price Observations

5.70 The number and quality of the prices collected are critical determinants of the reliability of the index, along with the specifications of the products priced. Standard methods for collecting and processing price information should be developed and procedures put in place for collecting them systematically and accurately at regular intervals. Price collectors should be well trained and well supervised, and should be provided with a comprehensive manual explaining the procedures they have to follow.

Collection

5.71 An important consideration is whether the index or parts of the index should relate to monthly (or quarterly) average prices or to prices for a specific period of time (e.g. a single day or week in a month). This decision is related to a number of issues, which include the use of an index, the practicalities of carrying out price collection and the pattern of price movements. When point-in-time pricing is adopted, prices should be collected over a very small number of days each month (or quarter). The interval between price observations should be uniform for each product. Since the length of the month (or quarter) varies, this uniformity needs to be defined carefully. When the aim is monthly (or quarterly) average prices, the prices collected should be representative of the period to which they refer.

5.72 Attention should also be paid to the time of day selected for price observation. For example, in the case of perishable goods, price observations may need to be collected at the same time on the same day of the week and not just before closing time, when stocks may be low or sold cheaply to minimize wastage.

5.73 Price collection should be carried out in such a way as to be representative of all geographical areas within the scope of the index. Special care should be taken where significant differences in price movements between areas may be expected.

5.74 Prices should be collected in all types of outlets that are important, including Internet sellers, open-air markets and informal markets, and in free markets as well as price-controlled markets. Where more than one type of outlet is important for a particular type of product, this should be reflected in the initial sample design and an appropriately weighted average should be used in the calculation of the index.

5.75 Specifications should be provided detailing the variety and size of the products for which price information is to be collected. These should be precise enough to identify all the price determining characteristics that are necessary to ensure that, as far as possible, the same goods and services are priced in successive periods in the same outlet. The specifications should include for example, make, model, size, terms of payment, conditions of delivery, type of guarantees and type of outlet. This information could be used in the procedures used for replacement and for quality adjustment.

5.76 Prices to be collected are actual transaction prices including indirect taxes and non-conditional discounts, that would be paid, agreed or costed (accepted) by the reference population. Where prices are not displayed or have to be negotiated, where quantity units are poorly defined or where actual purchase prices may deviate from listed or fixed prices, it may be necessary for the price collectors to purchase products in order to determine the transaction prices. A budget may be provided for any such purchases. When this is not possible, consideration may be given to interviewing customers about the prices actually paid. Tips for services where compulsory, should be treated as part of the price paid.

5.77 Exceptional prices charged for stale, shop-soiled, damaged or otherwise imperfect goods sold at clearance prices should be excluded, unless the sale of such products is a permanent and widespread phenomenon. Sale prices, discounts, cut prices and special offers should be included when applicable to all customers without there being significant limits to the quantities that can be purchased by each customer.

5.78 In periods of price control or rationing, where limited supplies are available at prices which are held at a low level by measures such as subsidies to the sellers, government procurement, price control, etc., such prices as well as those charged on any significant unrestricted markets should be collected. The different price observations should be combined in a way that uses the best information available with respect to the actual prices paid and the relative importance of the different types of sales.

5.79 For each type of product different alternatives for collecting prices should be carefully investigated to ensure that the price observations could be made reliably and effectively. Means of collection could include visits to outlets with paper forms or hand-held devices, interviews with customers, computer-assisted telephone interviews, mail-out questionnaires, brochures, price lists provided by large or monopoly suppliers of services, scanner data and prices posted on the Internet. For each alternative the possible cost advantages need to be balanced against an assessment of the reliability and timeliness of each of the alternatives.

5.80 Where centrally regulated or centrally fixed prices are collected from the regulatory authorities, checks should be made to ascertain whether the goods and services in question are actually sold and whether these prices are in fact paid. For goods and services where the prices paid are determined by combinations of subscription fees and piece rates (e.g. for newspapers, journals, public transport, electricity and telecommunications), care must be taken to ensure that a representative range of price offers are observed. Care must also be taken to ensure that prices charged to different types of consumers, are observed e.g. those linked to the age of the purchaser or to memberships of particular associations.

5.81 The collected price information should be reviewed for comparability and consistency with previous observations, the presence of replacements, unusual or large price changes and to ensure that price conversions of goods priced in multiple units or varying quantities are properly calculated. Extremely large or unusual price changes should be examined to determine whether they are genuine price changes or are due to changes in quality. Procedures should be put in place for checking the reliability of all price observations. This could include a programme of direct pricing and/or selective re-pricing of some products shortly after the initial observation was made.

5.82 Consistent procedures should be established for dealing with missing price observations because of inability to contact the seller, non-response, observation rejected as unreliable or products temporarily

unavailable. Prices of non-seasonal products that are temporarily unavailable, should be estimated until they reappear or are replaced, by using appropriate estimation procedures, e.g. imputation on the basis of price changes of similar non-missing products. Carrying forward the last observed price should be avoided, especially in periods of high inflation.

Replacements

5.83 Replacement of a product will be necessary when it disappears permanently. Replacement should be made within the first three months (quarter) of the product becoming unavailable. It may also be necessary when the product is no longer available or sold in significant quantities or not under normal sale conditions. Clear and precise rules should be developed for selecting the replacement product. Depending on the frequency of sampling and the potential for accurate quality adjustment, the most commonly used alternatives are to select: (i) the most similar to the replaced variety; (ii) the most popular variety among those that belong to the same elementary aggregate; and (iii) the variety most likely to be available in the future. Precise procedures should be laid down for price adjustments with respect to the difference in characteristics when replacements are necessary, so that the impact of changes in quality is excluded from the observed price.

5.84 Replacement of an outlet may be motivated if prices cannot be obtained because it has closed permanently, because of a decline in representativeness or because the outlet no longer cooperates. Clear rules should be established on when to discontinue price observations from a selected outlet, on the criteria for selecting a replacement as well as on the adjustments that may be required to price observations or weights. Such rules should be consistent with the objectives of the index and with the way in which the outlet sample has been determined.

5.85 Deletion of an entire elementary aggregate will be necessary if all products in that elementary aggregate disappear from most or all outlets and it is not possible to locate a sufficient number of price observations to continue to compile a reliable index for this elementary aggregate. In such situations it is necessary to redistribute the weight assigned to the elementary aggregate among the other elementary aggregates included in the next level of aggregation.

Quality Changes

5.86 The same product should be priced in each period as long as it is representative. However, in practice, products that can be observed at different time periods, may differ with respect to package sizes, weights, volumes, features and terms of sale as well as other characteristics. Thus, it is necessary to monitor the characteristics of the products being priced to ensure that the impact of any differences in price-relevant or utility-relevant characteristics can be excluded from the estimated price change.

5.87 Identifying changes in quality or utility is relatively more difficult for complex durable goods and services. It is necessary, therefore, to collect a considerable amount of information on the relevant characteristics of the products for which prices are collected. The most important information can be obtained in the course of collecting prices. Other sources of information on price-relevant or utility-relevant characteristics can be producers, importers or wholesalers of the goods included and the study of articles and advertisements in trade publications.

5.88 When a quality change is detected, an adjustment must be made to the price so that the index reflects as nearly as possible the pure price change. If this is not done, the index will either record a price change that has not taken place or fail to record a price change that did happen. The choice of method for such adjustments will depend on the particular goods and services involved. Great care needs to be exercised because the accuracy of the resulting index depends on the quality of this process. To assume automatically that all price change is a

reflection of the change in quality should be avoided as should the automatic assumption that products with different qualities are essentially equivalent.

5.89 The methods for estimating quality-adjusted prices may be:-
(a) *Explicit (or direct) quality adjustment method* that directly estimates the value of the quality difference between the old and new product and adjust one of the prices accordingly. Pure price change is then implicitly estimated as the difference in the adjusted prices.
(b) *Implicit (or indirect) quality adjustment method* which estimates the pure price change component of the price difference between the old and new products based on the price changes observed for similar products. The difference between the estimate of pure price change and the observed price change is considered as change due to quality difference. Some of these methods are complex, costly and difficult to apply. The methods used should as far as possible be based on objective criteria.
For quality adjustment methods refer to Annexure VIII.

Accuracy

5.90 As with all statistics, CPI estimates are subject to errors that may arise from a variety of sources. Compilers of CPIs need to be aware of the possible sources of error, and to take steps during the design of the index, its construction and compilation processes to minimize their impact, for which adequate resources should be allocated.

5.91 The following are some well-known sources of potential error, either in pricing or in index construction, that over time can lead to errors in the overall CPI: incorrect selection of products and incorrect observation and recording of their prices; incorrect selection of outlets and timing of price collection; failure to observe and adjust correctly for quality changes; appearance of new goods and outlets; failure to adjust for product and outlet substitution or loss of representativity; the use of inappropriate formulae for computing elementary aggregate and upper level indices. For types of errors refer to Annexure IX.

5.92 To reduce the index's potential for giving a misleading picture, it is in general, essential to update weights and baskets regularly to employ unbiased elementary aggregate formulae, to make appropriate adjustments for quality change, to allow adequately and correctly for new products, and to take proper account of substitution issues as well as quality control of the entire compilation process.

Dissemination

5.93 The CPI estimate should be computed and publicly released as quickly as possible after the end of the period to which it refers, and according to a pre-announced timetable. It should be made available to all users at the same time, in a convenient form, and should be accompanied by a short methodological explanation. Rules relating to its release should be made publicly available and strictly observed. In particular, they should include details of who has pre-release access to the results, why, under what conditions and how long before the official release time.

5.94 The general CPI should be compiled and released monthly. Where there is no strong user demand for a monthly series or countries do not have the necessary resources, the CPI may be prepared and released quarterly. Depending on national circumstances, sub-indices may be released with a frequency that corresponds to users' needs.

5.95 When it is found that published index estimates have been seriously distorted because of errors or mistakes made in their compilation, corrections should be made and published. Such corrections should be made as soon as possible after detection according to publicly available policy for correction. Where the CPI is widely

used for adjustment purposes for wages and contracts, retrospective revisions should be avoided to the extent possible.

5.96 The publication of the CPI results should show the index level from the index reference period. It is also useful to present derived indices such as the one that shows changes in the major aggregates between: (i) the current month and the previous month; (ii) the current month and the same month of the previous year; and (iii) the average of the latest 12 months and the average of the previous 12 months. The indices should be presented in both seasonally adjusted and unadjusted terms, if seasonally adjusted data are available.

5.97 Comments and interpretation of the index should accompany its publication to assist users. An analysis of the contributions of various products or group of products to the overall change and an explanation of any unusual factors affecting the price changes of the major contributors to the overall change should be included.

5.98 Indices for the major expenditure groups should also be compiled and released. Consideration should be given to compiling indices for the divisions and groups of the COICOP (Annexure X). Sub-indices for different regions or population groups and alternative indices designed for analytical purposes may be compiled and publicly released if there is a demand from users, they are judged to be reliable and their preparation is cost effective.

5.99 The index reference period may be chosen to coincide with the latest weights reference period or it could be established to coincide with the base period of other statistical series. It should be changed as frequently as necessary to ensure that the index numbers remain easy to present and understand.

5.100 Average prices and price ranges for important and reasonably homogeneous products may be estimated and published in order to support the research and analytical needs of users.

5.101 Countries should report national CPI results and methodological information to the International Labour Office as soon as possible after their national release.

5.102 Comparing national CPI movements across countries is difficult because of the different measurement approaches used by countries of certain products, particularly housing and financial services. The exclusion of housing (actual rents and either imputed rents or acquisition of new houses, and maintenance and repair of dwelling) and financial services from the all-items index will make the resulting estimates of price change for the remaining products more comparable across countries. Therefore, in addition to the all-items index, countries should, if possible, compile and provide for dissemination to the international community an index that excludes housing and financial services. It should be emphasized that even for the remaining products in scope, there can still be difficulties when making international comparisons of changes in consumer prices.

Consultations and Integrity

5.103 The compiling agency should have the professional independence, competence and resources necessary to support a high quality CPI programme. The UN *Fundamental Principles of Official Statistics* and the ILO *Guidelines concerning dissemination practices for labour statistics* should be respected.

5.104 The agency responsible for the index should consult representatives of users on issues of importance for the CPI, particularly during preparations for any changes to the methodology used in compiling the CPI. One way of organizing such consultations is through the establishment of advisory committee(s) on which social partners as well as other users and independent experts might be represented.

5.105 In order to ensure public confidence in the index, a full description of the data collection procedures and the index methodology should be prepared and made widely available. Reference to this description should be

made when the CPI is published. The documentation should include an explanation of the main objectives of the index, details of the weights, the index number formulae used and a discussion of the accuracy of the index estimates. The precise identities of the outlets and goods and services used for price collection should not be revealed.

5.106 Users should be informed in advance of any changes that are going to be made to the scope, weights or methodology used to estimate the CPI.

5.107 Technical guidance on the compilation of consumer price indices is provided in the *Consumer price index manual: Theory and practice*. This manual should be updated periodically in order to reflect current best practice.

Annexure I

Centres covered under CPI (UNME) and CPI (IW)

State/UT	Centres of		
	CPI(UNME) Base:1984-85	CPI(IW)	
		Base:1982	Base:2001 *
1.Andhra Pradesh	1.Hyderabad [1] 2.Visakhapatnam [2] 3.Warrangal 4.Vijayawada 5.Kurnool	1.Hyderabad 2.Visakhapatnam 3.Warrangal 4.Guntur 5.Gudur @	1.Hyderabad 2.Visakhapatnam 3.Warrangal 4.Guntur 5.Vijayawada (N) 6.Godavarikhani @ (N)
2.Assam	6.Guwahati [3]	6.Guwahati 7.D.D.Tinsukia * 8.Labac-Silchar * 9.Mariani-Jorhat * 10.Rangapara-Tezpur *	7.Guwahati 8.D.D.Tinsukia * 9.Labac-Silchar * 10.Mariani-Jorhat * 11.Rangapara-Tezpur *
3.Bihar	7.Patna 8.Muzaffarpur	11.Monghyr-Jamalpur	12.Monghyr-Jamalpur
4.Chattisgarh	-	12.Bhillai	13.Bhillai
5.Goa	-	-	14.Goa
6.Gujarat	9. Ahmedabad [4] 10.Bhavnagar 11.Rajkot 12.Surat	13.Ahmedabad 14.Bhavnagar 15.Rajkot 16.Surat 17.Vadodra	15.Ahmedabad 16.Bhavnagar 17.Rajkot 18.Surat 19.Vadodra
7.Haryana	13.Rohtak	18.Yamunanagar 19.Faridabad	20.Yamunanagar 21.Faridabad
8.Himachal Pradesh	14.Shimla	-	22.Himachal Pradesh
9.Jammu & Kashmir	15.Srinagar 16.Jammu	20.Srinagar	23.Srinagar
10.Jharkhand	17.Ranchi	21.Ranchi-Hatia 22.Jamshedpur 23.Jharia @ 24.Kodarma @ 25.Noamundi @	24.Ranchi-Hatia 25.Jamshedpur 26.Jharia @ 27.Kodarma @ 28.Giridih @ (N) 29.Bokaro (N)
11.Karnataka	18.Bangalore 19.Hubli [5] 20.Gulbarga 21.Mangalore	26.Bangalore 27.Hubli-Dharwar 28.Belgaum 29.Merccara *	30.Bangalore 31.Hubli-Dharwar 32.Belgaum 33.Merccara * 34.Mysore (N)
12.Kerala	22.Thiruvananthapuram 23.Calicut	30.Thiruvananthapuram 31.Quilon 32.Ernakulam/Alwaye 33.Mundakayam *	35.Quilon 36.Ernakulam/Alwaye 37.Mundakayam *
13.M.P.	24.Bhopal 25.Indore 26.Jabalpur 27.Gwalior	34.Bhopal 35.Indore 36.Jabalpur 37.Balaghat @	38.Bhopal 39.Indore 40.Jabalpur 41.Chindwara @
14.Maharashtra	28.Mumbai 29.Nagpur 30.Pune 31.Sholapur 32.Aurangabad	38.Mumbai [7] 39.Nagpur 40.Pune 41.Sholapur 42.Nasik	42.Mumbai 43.Nagpur 44.Pune 45.Sholapur 46.Nasik

Continued on next page

State/UT	Centres of		
	CPI(UNME) Base:1984-85	CPI(IW)	
		Base:1982	Base:2001*
15.Manipur	33.Imphal	-	-
16.Meghalaya	34.Shilong	-	-
17.Nagaland	35.Kohima	-	-
18.Orissa	36.Cuttack [6] 37.Sambalpur	43.Rourkela 44.Barbil [@]	47.Rourkela 48.Angul-Talcher [@] (N)
19.Punjab	38.Amritsar	45.Amritsar 46.Ludhiana	49.Amritsar 50.Ludhiana 51.Jalandhar (N)
20.Rajasthan	39.Jaipur 40.Ajmer 41.Jodhpur	47.Jaipur 48.Ajmer	52.Jaipur 53.Ajmer 54.Bhilwara [@]
21.Sikkim	42.Gangtok	-	-
22.Tamil Nadu	43.Chennai 44.Coimbatore 45.Madurai 46.Salem 47. Tiruchirapally	49.Chennai 50.Coimbatore 51.Madurai 52.Salem 53.Tiruchirapally 54.Coonoor [✯]	55.Chennai 56.Coimbatore 57.Madurai 58.Salem 59.Tiruchirapally 60.Coonoor [✯]
23.Tripura	48.Agartala	-	61.Tripura
24.U.P.	49.Agra 50.Kanpur 51.Meerut 52.Allahabad 53. Lucknow	55.Agra 56.Kanpur 57.Varanasi 58.Ghaziabad 59.Saharanpur	62.Agra 63.Kanpur 64.Varanasi 65.Ghaziabad 66.Lukhnow (N)
25.West Bengal	54.Kolkata 55.Asansol 56.Kharagpur 57.Siliguri	60. Kolkata 61.Asansol 62.Howrah 63.Durgapur 64.Darjeeling [✯] 65.Haldia 66.Jalpaiguri [✯] 67.Raniganj [@]	67. Kolkata 68.Asansol 69.Howrah 70.Durgapur 71.Darjeeling [✯] 72.Haldia 73.Jalpaiguri [✯] 74.Raniganj [@] 75.Siliguri (N)
26.Chandigarh	58.Chandigarh	68.Chandigarh	76.Chandigarh
27.Delhi	59.Delhi	69.Delhi	77.Delhi
28.Pondicherry	-	70.Pondicherry	78.Pondicherry

***** The Labour Bureau has released the maiden index on base 2001, for the month of January, 2006 on 9th March, 2006.

1. Includes Secunderabad, 2. Includes Waltair, 3. Includes Dispur, 4. Includes Gandhinagar,
5. Includes Dharwar, 6. Includes Bhubaneshwar, 7. Includes Thana.

✯ – Plantation centres (selected on the basis of employment in Plantations)

@ – Mining centres (selected on the basis of employment in Mining)

N – New centres (9 in number).

Notes:-

Besides the above 70 centres covered under all-India CPI(IW) on base 1982, the price data had also been regularly collected from 6 centres viz., Kothagudem (A.P.), Himachal Pradesh, Bhilwara (Rajasthan), Chhindwara (M.P.), Tripura and Goa; and index numbers on base 1982, compiled. The indices of these 6 centres did not form part of all-India Index.

Annexure II

FAMILY LIVING SURVEY
SCHEDULE: FAMILY BUDGET ENQUIRY

[1] Identification and informant's particulars					
1.	zone-state-centre		12	particulars of head of family	
2.	stratum		12.1	name	
3.	state/u.t		12.2	sex (male-1,female-2)	
4.	district		12.3	social group (ST-1,SC-2,OBC-3,others-9)	
5.	centre		13.	name of the main earner	
6.	sub-sample		14.	establishment where main earner is employed	
7.	sub-round				
8.	month of enquiry		15.	sector (govt.-1, public-2, others-3) specify:	
9.	sample unit-I		16.	name and address of informant	
10.	sample unit-II				
11.	family multiplier*		17.	relationship with main earner	

* not to be filled in by the investigator

[2] Classificatory characters				
1.1	family size	adult	male	
1.2			female	
1.3		children	male	
1.4			female	
1.9		Total		
2.	**house/flat ocupied**		**code (a)**	
3.1	dwelling unit comprising	living room	no.	
3.2			area (sq. mt)	
3.3		any other room	no.	
3.4			area (sq. mt)	
4.1	total monthly family expenditure in		Rs	
4.2			code	
5.1	per capita monthly expenditure		Rs	
5.2			code	
6.1	adult consumption unit (family)		no.	
6.2	per adult consumption unit expenditure		(Rs)	
7.	no. of non-manual employees in the family		no.	
8.1	total family income		Rs	
8.2			code	

9.1	per capita monthly income	Rs	
9.2		code	
10.	reference month		

(a) house/flat occupied: self owned-1; private on rent-2; provided by employer: on rent-3, without any rent-4; others (specify)-9.

[3.1] Demographic particulars of members of households										
sr. no.	relationship with the main earner		member-ship type (code)	length of stay(days)	sex (male-1 female-2)	age at last birthday (years)	marital status (code)	educational standard (code)	economic status (code)	activity status (code)
	description	code								
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)

[3.2] Dependents living away from the family										
sr. no.	relationship with the main earner		member-ship type (code)	length of stay(days)	sex (male-1 female-2)	age at last birthday (years)	marital status (code)	educational standard (code)	economic status (code)	activity status (code)
	description	code								
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)

Codes For Block 3.1 and 3.2

Col. (3) : ***relation to main earner:*** *self-1, spouse of head-2, married child-3, spouse of married child-4, unmarried child-5, grandchild-6, father/mother/father-in-law/mother-in-law-7, brother/sister/brother-in-law/sister-in-law/other relatives-8, servants/employees/other non-relatives-9.*

*Col. (4) : t*emporary absentees-1, paying guests-2, servants-3, other non-family member-9

Col(8) ***: marital status code:*** *never married – 1, currently married – 2, widowed – 3, divorced/separated – 4*

Col (9) ***: general education code :*** *not literate –01, literate without formal schooling –02, literate but below primary –03, primary– 04, middle –05, secondary –06, higher secondary –07, diploma/certificate course –08, graduate and above in : agriculture-09, engineering/technology -10, medicine-11, other subjects-12*

Col (10) ***: economic status code***: earner-1, earning dependent-2, non-earning dependent-3

Col (11) ***: activity status code:*** *employer-1, employee-2, apprentice-3, self employed-4, unpaid family labour-5, unemployed seeking employment-6, not seeking though available for employment-7, not in labour force – 8.*

[4] Ceremonies performed and meals consumed during the last calendar month preceding the date of Survey		
1.	Ceremonies performed? (yes –1, no –2)	
2.	no. of meals consumed by family members	
3.	no. of meals consumed by non-family members	
4.	total costs on the ceremonies (Rs. 0.00)	
5.	total costs on the meals (Rs 0.00)	

[5] Family members enterprise account during last calendar month preceding the date of survey

sr. no.	sr no. as in block 3	sr no. of enter-prises	enterprise group (code)	expenditure (Rs.0.00)			gross receipts(Rs.0.00)		total (8+9)
				labour cost	material cost	non-material cost	from sale of goods & services	goods consumed by family	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)

Codes of Block 5

Col(4) :enterprise group: **boarding and lodging services-1, agriculture-2, animal husbandary-3, *poultry-4, trade-5, professions-6, others (specify)-7***

[6] Rreceipt (Rs) during the last calendar month															
refere-nce period	sr. no.	sr. no. as in bl. 3	gross income from paid employment							total net income from self employ-ment	rent	other gross income	**total** income [col.10 to col. 13]	gross receipt from other sources	**total** receipts [col.14 + col. 15]
			basic wages/ salary	allo-wan-ces	bonus & com-mision	over-time earn-ings	othe r cash earn-ings	con-cession	**total** [col. 4 to col. 9]						
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
total															

[7] Consumption of food, pan, tobacco and intoxicants during the last calendar month ended on …….					
code	item	quantity* (0.00)		value (Rs 0.00)	
(1)	(2)	(3)		(4)	
101	rice – P.D.S.				
102	rice – other sources				
103	chira				
104	khoi, lawa				
105	muri				
106	other rice products				
107	wheat/atta – P.D.S.				
108	wheat/atta – other sources				
110	maida				
111	suji, rawa				
112	sewai, noodles				
113	bread (bakery)				
114	other wheat products				
115	jowar & products				
116	bajra & products				
117	maize & products				
118	barley & products				
120	small millets & products				
121	ragi & products				
129	**cereal: s.t. (101-121)**				
139	**cereal substitutes** (tapioca, jackfruit seed etc.)				
140	arhar (tur)				
141	gram (split)				
142	gram (whole)				
143	moong				
144	masur				
145	urd				
146	peas				
147	soyabean				
148	khesari				
150	other pulses				
151	gram products				

- ***Unit is kg unless otherwise specified in col(2)***

[7] Consumption of food, pan, tobacco and intoxicants during the last calendar month ended on …….					
code	item	quantity* (0.00)		value (Rs 0.00)	
(1)	(2)	(3)		(4)	
152	besan				
153	other pulse products				
159	**pulses & pulse products: s.t. (140-153)**				
160	milk: liquid (litre)				
161	baby food				
162	milk : condensed/ powder				
163	curd				
164	ghee				
165	butter				
166	ice-cream				
167	other milk products				
169	**milk & milk products: s.t.(160-167)**				
170	vanaspati, margarine				
171	mustard oil				
172	groundnut oil				
173	coconut oil				
174	edible oil (others)				
179	**edible oil: s.t. (170-174)**				
180	eggs (no.)		00		
181	fish, prawn				
182	goat meat/mutton				
183	beef/ buffalo meat				
184	pork				
185	chicken				
186	others (birds, crab, oyster, tortoise, etc.)				
189	**egg, fish & meat: s.t. (180-186)**				

* ***Unit is kg unless otherwise specified in col(2)***

[7] Consumption of food, pan, tobacco and intoxicants during the last calendar month ended on ……..					
code	Item	quantity* (0.00)		value (Rs 0.00)	
(1)	(2)	(3)		(4)	
190	potato				
191	onion				
192	radish				
193	carrot				
194	turnip				
195	beet				
196	sweet potato				
197	arum				
198	pumpkin				
200	gourd				
201	bitter gourd				
202	cucumber				
203	parwal / patal				
204	jhinga / torai				
205	snake gourd				
206	papaya (green)				
207	cauliflower				
208	cabbage				
210	brinjal				
211	lady's finger				
212	palak/other leafy vegetables				
213	french beans and barbati				
214	tomato				
215	peas				
216	chillis (green)				
217	capsicum				
218	plantain (green)				
220	jackfruit (green)				
221	lemon (no.)		00		
222	other vegetables				
229	**vegetables: s.t. (190-222)**				

* ***Unit is kg unless otherwise specified in col(2)***

[7]Consumption of food, pan, tobacco and intoxicants during the last calendar month ended on ……					
Code	item	quantity* (0.00)		value (Rs 0.00)	
(1)	(2)	(3)		(4)	
230	banana (no.)		00		
231	jackfruit				
232	watermelon				
233	pineapple(no.)		00		
234	coconut (no.)		00		
235	guava				
236	singara				
237	orange,mausami (no.)		00		
238	papaya				
240	mango				
241	kharbooza				
242	pears (naspati)				
243	berries				
244	leechi				
245	apple				
246	grapes				
247	other fresh fruits				
249	**fruits (fresh) : s.t. (230-247)**				
250	coconut (copra)				
251	groundnut				
252	dates				
253	cashewnut				
254	walnut				
255	other nuts				
256	raisin (kishmish, monacca, etc.)				
257	other dry fruits				
259	**fruits (dry) : s.t. (250-257)**				
260	sugar - P.D.S.				
261	sugar - other sources				
262	gur				
263	candy (misri)				
264	honey				
269	**sugar : s.t. (260-264)**				
279	**salt**				

Unit is kg unless otherwise specified in col(2)

[7] Consumption of food, pan, tobacco and intoxicants during the last calendar month ended on ……..					
code	Item	quantity* (0.00)		value (Rs 0.00)	
(1)	(2)	(3)		(4)	
280	turmeric (gm)		00		
281	black pepper (gm)		00		
282	dry chillies(gm)		00		
283	garlic (gm)		00		
284	tamarind (gm)		00		
285	ginger (gm)		00		
286	curry powder (gm)		00		
287	oilseeds (gm)		00		
288	other spices (gm)		00		
289	**spices : s.t. (280-288)**		00		
290	tea : cups (no.)				
291	tea : leaf (gm)		00		
292	coffee : cups (no.)		00		
293	coffee: powder (gm)		00		
294	ice				
295	cold beverages: bottled/canned (no.)		00		
296	fruit juice and shake (glass)		00		
297	coconut: green (no.)		00		
298	other beverages (cocoa, etc.)				
300	biscuits				
301	salted refreshments				
302	prepared sweets				
303	cooked meals (no.)		00		
304	cake, pastry				
305	pickles (gm)		00		
306	sauce (gm)		00		
307	jam, jelly (gm)		00		
308	other processed food				
309	**beverages, etc.: s.t. (290-308)**				
310	pan : leaf (no.)		00		
311	pan : finished (no.)		00		
312	supari (gm)		00		
313	lime (gm)		00		
314	katha (gm)		00		

Unit is kg unless otherwise specified in col(2)

[7] Consumption of food, pan, tobacco and intoxicants during the last calendar month ended on ……					
code	Item	quantity* (0.00)		value (Rs 0.00)	
(1)	(2)	(3)		(4)	
315	other ingredients for pan (gm)		00		
319	**pan: s.t. (310-315)**				
320	bidi (no.)		00		
321	cigarettes (no.)		00		
322	leaf tobacco				
323	snuff (gm)		00		
324	hookah tobacco				
325	cheroot (no.)		00		
326	zarda, kimam, surti (gm)		00		
327	other tobacco products (gm)		00		
329	**tobacco: s.t. (320-327)**				
330	ganja (gm)		00		
331	toddy (litre)				
332	country liquor (litre)				
333	beer (litre)				
334	foreign liquor or refined liquor (litre)				
335	other intoxicants				
339	**intoxicants: s.t. (330-335)**				

[8] Consumption of fuel & light during the last calendar month ended on					
code	item	quantity* (0.00)		Value (Rs 0.00)	
(1)	(2)	(3)		(4)	
340	coke				
341	firewood and chips				
342	electricity (std. Unit)		00		
343	dung cake				
344	kerosene - P.D.S. (litre)				
345	kerosene - other sources (litre)				
346	matches (box)		00		
347	coal				

Unit is kg unless otherwise specified in col(2)

[8] Consumption of fuel & light during the last calendar month ended on …….					
code	item	quantity* (0.00)		Value (Rs 0.00)	
(1)	(2)	(3)		(4)	
348	LPG				
350	charcoal				
351	candle (no.)		00		
352	gobar gas				
353	other fuel				
359	**fuel and light: s.t. (340-353)**				

* Unit is kg unless otherwise specified in col(2)

[9] Consumption of clothing, bedding, etc. during the last *365 days* ended on ……					
code	item	quantity (0.00)		value (Rs 0.00)	
(1)	(2)	(3)		(4)	
360	dhoti (metre)				
361	sari (metre)				
362	cloth for shirt, pyjama, salwar etc. (metre)				
363	cloth for coat, trousers, overcoat etc. (metre)				
364	chaddar, dupatta, shawl etc. (no.)		00		
365	lungi (no.)		00		
366	gamchha, towel, handkerchief (no.)		00		
367	hosiery articles, stockings, under-garments etc. (no.)		00		
368	ready-made garments (no.)		00		
370	headwear (no.)		00		
371	knitted garments, sweater, pullover, cardigan, muffler, scarf etc. (no.)		00		
372	knitting wool, cotton yarn (gm)		00		
373	clothing: others				
374	clothing: second-hand				
379	**clothing: s.t. (360-374)**				
380	bed sheet, bed cover (no.)		00		
381	rug, blanket (no.)		00		
382	pillow, quilt, mattress (no.)		00		
383	cloth for upholstery, curtain, table-cloth etc. (metre)				
384	mosquito net (no.)		00		
385	mats and matting (no.)		00		
386	cotton (gm)		00		
387	bedding: others				
389	**bedding, etc.: s.t. (380-387)**				

[10] Consumption of footwear during the last *365 days* ended on …….			
code	item	no. of pairs	value (**whole no**. of Rs)
(1)	(2)	(3)	(4)
390	leather boots, shoes		
391	leather sandals, chappals etc.		
392	other leather footwear		
393	rubber / PVC footwear		
394	other footwear		
399	**footwear: s.t. (390-394)**		

[11] Expenditure on education and medical (institutional) goods and services during the last 365 days ended on …….

code	item	value (Rs 0.00)		code	item	value (Rs 0.00)	
(1)	(2)	(3)		(1)	(2)	(3)	
400	books, journals			410	medicine		
401	newspapers, periodicals			411	X-ray, ECG, pathological test etc.		00
402	library charges		00	412	doctor's/surgeon's fee		00
403	stationery			413	hospital & nursing home charges		00
404	tuition and other fees (school, college, etc.)			414	other medical expenses		
405	private tutor/coaching centre		00	**419**	**medical – institutional: s.t. (410-414)**		
406	other educational expenses						
409	**education: s.t. (400-406)**						

[12] Expenditure on miscellaneous goods and services including medical (non-institutional), rents and taxes during the last calendar month ended on …….

code	item	value (Rs 0.00)		code	item	value (Rs 0.00)	
(1)	(2)	(3)		(1)	(2)	(3)	
420	medicine			430	cinema, theatre		
421	X-ray, ECG, pathological test etc.			431	mela, fair, picnic		
				432	sports goods, toys etc.		
422	doctor's/surgeon's fee			433*	club fees		
423	family planning appliances			434	goods for recreation and hobbies		
424	other medical expenses			435	photography		
429	**medical – non-institutional: s.t. (420-424)**			436	video cassette / VCR / VCP(hire)		
				437	other entertainment		
				439	**entertainment : s.t. (430-437)**		

[12] Expenditure on miscellaneous goods and services including medical (non-institutional), rents and taxes during the last calendar month ended on …….

code	item	value (Rs 0.00)	code	item	value (Rs 0.00)
(1)	(2)	(3)	(1)	(2)	(3)

440	spectacles		00	480	domestic servant/cook		00
441	torch			481	sweeper		00
442	pen			482	barber, beautician etc.		
443	lock			483	washerman, laundry, ironing		
444	umbrella, raincoat		00	484	tailor		00
445	lighter(bidi/cigarette/gas stove)			485	priest		
446	other goods for personal care and effects			486	legal expenses		00
449	**goods for personal care and effects: s.t. (440-446)**			487	postage & telegram		
				488[$]	telephone charges		
450	toilet soap			490	repair charges for non-durables		
451	toothbrush, toothpaste etc.			491	grinding charges		
452	powder, snow cream, lotion			492	miscellaneous expenses		
453	hair oil, shampoo, hair cream			493	pet animals (incl. birds, fish)		
454	comb			494	other consumer services excluding conveyance		
455	shaving blades, shaving stick, razor			**499**	**consumer services excluding conveyance: s.t. (480-494)**		
456	shaving cream						
457	sanitary napkins						
458	other toilet articles						
459	**toilet articles:s.t. (450-458)**			500	airway fare		00
				501	railway fare		00
460	electric bulb, tubelight			502	bus/tram fare		
461	electric batteries			503	taxi, auto-rickshaw fare		
462	other non-durable electric goods			504	steamer, boat fare		
463	earthenware			505	rickshaw (hand drawn & cycle) fare		
464	glassware						
465	bucket, water bottle/feeding bottle & other plastic goods			506	horse cart fare		
466	coir, rope etc.			507	porter charges		
467	washing soap/soda			508	petrol		
468	other washing requisites			510	diesel		
470	agarbati			511	lubricating oil		
471	flower(fresh) : all purposes			512	school bus/van		
472	insecticide, acid etc.			513	other hired conveyance		
473	other petty articles			**519**	**conveyance : s.t. (500-513)**		
479	**sundry articles:s.t.(460-473)**		00				

[12] Expenditure on miscellaneous goods and services including medical (non-institutional), rents and taxes during the last calendar month ended on …….

code	item	value (Rs 0.00)		code	item	value (Rs 0.00)	
(1)	(2)	(3)		(1)	(2)	(3)	
*520	house rent, garage rent (actual)		00				
*521	residential land rent		00	*540	water charges		
522	consumer rent (other goods)			*541	other consumer taxes & cesses		
529	**rent: s.t. (520-522)**			**549**	**consumer taxes and cesses s.t. (540-541)**		

539	**house rent, garage rent (imputed)**		00	

$ For domestic telephone charges, bill last paid will be divided by the number of months to which the bill relates, so as to get a "monthly" figure.

* The value of these items may be derived as the amount last paid divided by the number of months for which amount was paid.

[13] Expenditure for purchase and construction (including repair and maintenance) of durable goods for domestic use during the last *365 days* ended on .....

item		no. in use on the date of survey	firsthand purchase			cost of raw materials and services for construction and repair (Rs)	secondhand purchase		total expenditure (Rs) [(6)+(7)+(9)]
			no. purchased	whether hire purchased *(yes-1, no-2)*	value (Rs)		no.	value (Rs)	
code	description								
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
550	bedstead								
551	almirah, dressing table								
552	chair, stool, bench, table								
553	suitcase, trunk, box, handbag and other travel goods								
554	foam, rubber cushion (Dunlop pillow type)								
555	carpet, daree & other floor mattings								
556	paintings, drawings, engravings etc.								
557	other furniture & fixtures (couch, sofa etc.)								
559	**furniture & fixtures: s.t. (550-557)**								

[13] Expenditure for purchase and construction (including repair and maintenance) of durable goods for domestic use during the last *365 days* ended on .....

item		no. in use on the date of survey	firsthand purchase			cost of raw materials and services for construction and repair (Rs)	secondhand purchase		total expenditure (Rs) [(6)+(7)+(9)]
			no. purchased	whether hire purchased *(yes-1, no-2)*	value (Rs)		no.	value (Rs)	
code	description								

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
560	gramophone & record player								
561	radio								
562	television								
563	VCR/VCP								
564	camera & photographic equipment								
565	tape recorder, CD player								
566	gramophone record, audio/video cassette								
567	musical instruments								
568	other goods for recreation								
569	**goods for recreation: s.t.(560-568)**								
570	gold ornaments								
571	silver ornaments								
572	jewels, pearls								
573	other ornaments								
579	**jewellery and ornaments: s.t. (570-573)**								
580	stainless steel utensils								
581	other metal utensils								
582	casseroles, thermos, thermoware								

[13] Expenditure for purchase and construction (including repair and maintenance) of durable goods for domestic use during the last *365 days* ended on .....

item		no. in use on the date of survey	firsthand purchase			cost of raw materials and services for construction and repair (Rs)	secondhand purchase		total expenditure (Rs) [(6)+(7)+(9)]
			no. purchased	whether hire purchased *(yes-1, no-2)*	value (Rs)		no.	value (Rs)	
code	description								
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
583	other crockery & utensils								
589	**crockery & utensils: s.t. (580-583)**								
590	electric fan								
591	air conditioner, air cooler								

592	lantern, lamp, electric lampshade								
593	sewing machine								
594	washing machine								
595	stove								
596	pressure cooker/pressure pan								
597	refrigerator								
598	electric iron, heater, toaster, oven & other electric heating appliances								
600	other cooking/household appliances								
609	**cooking and household appliances: s.t. (590-600)**								
610	bicycle								
611	motor cycle, scooter								
612	motor car, jeep								
613	tyres & tubes								
614	other transport equipment								
619	**personal transport equipment: s.t. (610-614)**								

[13] Expenditure for purchase and construction (including repair and maintenance) of durable goods for domestic use during the last *365 days* ended on .....

item		no. in use on the date of survey	firsthand purchase			cost of raw materials and services for construction and repair (Rs)	secondhand purchase		total expenditure (Rs) [(6)+(7)+(9)]
			no. purchased	whether hire purchased *(yes-1, no-2)*	value (Rs)		no.	value (Rs)	
code	description								
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
620	glass eyes, hearing aids & orthopaedic equipment								
621	other medical equipment								
629	**therapeutic appliances : s.t. (620-621)**								
630	clock, watch								
631	other machines for household work								
632	any other personal goods								
639	**other personal goods: s.t. (630-632)**								

640	bathroom and sanitary equipment									
641	plugs, switches & other electrical fittings									
642	residential building & land (cost of repairs only)									
643	other durables (specify).....									
649	**residential building, land and other durables : s.t. (640-643)**									
659	**durable goods : total (559+569+579+589+ 609+619+629+639+ 649)**									

14] Savings and investments and debts repaid during last calendar month preceding the date of survey

sr. no.	item	amount(Rs)
(1)	(2)	(3)
1.	national savings certificate(NSC)	
2.	post office TDS	
3.	indira vikash patra	
4.	kishan vikas patra	
5.	unit trust of india	
6.	mutual fund	
7.	life insurance premium	
8.	provident fund contribution	
9.	co-operative credit societies	
10.	chit fund	
11.	deposits in non-banking company	
12.	fixed deposits in bank	
13.	deposits with individual	
14.	shares and debentures	
15.	investment in real estates*	
16.	cash in hand & in bank	
17.	others (specify:)	
18.	**sub-total [srl. nos. 1 to 17]**	
19.	debts repaid	
20.	**total [srl. no. 18 + srl. no. 19]**	

*Residential land, Agricultural land, Shops ,Residential flats, Farm houses etc.

[15] Indebtedness on the date of the survey								
sr. no.	particulars of loan taken	loan-1	loan-2	loan-3	loan-4	loan-5	loan-6	total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1.	purpose of loan							
2.	amount of loan (Rs)							
2.1	original							
2.2	outstanding							
3.	date on which loan was incurred							
4.	source of loan							
5.	rate of interest percent per annum(Rs0.00)							
6.	nature of security							
7.	type of installment							
8.	amount of installment(Rs)							

Code For Block 15

sr. no 1: purpose of loan : festival-1, marriage-2, child-birth-3, funeral-4, ceremonies/rites-5, sickness-6, education-7, unemployment/lay-off etc-8, current deficit including consumption-9, other family purpose(specify:)-10, building and its repairs-11, purchase of other assets(lands etc-12, cultivation-13, other family enterprises-14, inherited debt-15, payment of insurance premium-16, others(specify:)-17

sr. no 4: source of loan : provident fund-1, co-operative credit-2, co-operative house building society-3, employer-4, money lender-5, shop-keeper-6, friends and relatives-7, bank-8, LIC-9, welfare fund-10, credit cards – 11, others(specify:)-12

sr. no 6: nature of security : no security-1, surety of co-members of society-2, land-3, ornaments and jewllery-4, other assets(specify:)-5, life insurance policy-6, others(specify:)-7

sr. no 7: type of installments : weekly-1, monthly-2, quarterly-3, half yearly-4, yearly-5, not fixed-6, others (specify:)-7

[16] Summary of income and expenditure								
sr. no.	item	reference			amount(Rs0.00)		% to total expenditure	code
		block	item	col.	365 days	30 days		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1.	total receipts	6	total	16				
2.	cereals	7	129	4				
3.	cereal substitute	7	139	4				
4.	pulses & products	7	159	4				
5.	milk & milk products	7	169	4				
6.	edible oil	7	179	4				
7.	egg , fish & meat	5	189	4				
8.	vegetables	7	229	4				
9.	fruits (fresh)	7	249	4				
10.	fruits (dry)	7	259	4				
11.	sugar	7	269	4				

12.	Salt	7	279	4				
13.	spices	7	289	4				
14.	beverages etc.	7	309	4				
15.	Pan	7	319	4				
16.	tobacco	7	329	4				
17.	intoxicants	7	339	4				
18.	fuel and light	8	359	4				
19.	clothing	9	379	4				
20.	bedding etc.	9	389	4				
21.	footwear	10	399	4				
22.	education	11	409	3				
23.	medical (institutional)	11	419	3				
24.	medical (non-institutional)	12	429	3				
25.	entertainment	12	439	3				
26.	personal effects	12	449	3				
28.	toilet articles	12	459	3				
29.	sundry articles	12	479	3				
30.	consumer services excl. conveyance	12	499	3				
31.	conveyance	12	519	3				
32.	Rent	12	529	3				
33.	imputed rent	12	539	3				
34.	consumer taxes & cesses	12	549	3				
35.	durable goods	13	659	10				
36.	investments	14	20	3				
37.	total expenditure [col. 7 of sr. no.2 to col. 7 of sr. no. 36]						100	
38.	balance [col. 7 of sr. no. 1 - col. 7 of sr. no. 37](positive – 1, negative – 2)							

[17] Particulars of field operation

sr. no.	item	investigator	supervising officer
(1)	(2)	(3)	(4)
1.	i) name		
2.	date(s) of :	DD MM YY	DD MM YY
	(i) survey/inspection		
	(ii) receipt		
	(iii) scrutiny		
	(iv) despatch		
3.	no. of scrutiny. sheets attached		
4.	time taken (in minutes)		
	(i) interview		
	(ii) inspection		
	(iii) scrutiny		
	(iv) others		
5.	signature		

[18] Remarks by investigator

[19] Comments by supervisory officer(s)

Annexure III

FAMILY LIVING SURVEY

SCHEDULE : HOUSE RENT ENQUIRY

1. Identification and informant's particulars					
1.	zone-state-centre		8.	sample unit-ii	
2	stratum		9.	reference month (i.e. the month in which sample dwelling is to be canvassed)	
3.	state /uts		10	sampling sr. no	
4.	district		11.	name of head of family	
5.	centre		12	name of informant	
6.	sub-sample		13.	relationship with head of family	
7.	sample unit-i .		14	state if the dwelling is substituted	

2. Identification particulars of the dwelling					
1.	Address: (a) *Flat/Bungalow/ Suite No.		2.	Location On the main road (Yes-1, No-2)	
	(b) Floor No. (0,1,2 etc.)			four sides of the dwelling North: East: South: West:	
	(c) Premises No.		3.	Building type: (Chawl basti-1; Flat-2; Independent house-3 Others-4 (chawl basti is a cluster of dwellings with common facilities generally located in slum areas.	
	(d) Premises name				
	(e) Name of landlord				
	(f) Municipal Ward No.				
	(g) Post office				
	(h) Name of road/street/lane		4.	Other particulars	

delete whichever is inapplicable.

3. Particulars of the dwelling							
1.	Number of rooms etc. in the dwelling (if shared with occupants of other dwellings, then a remark "shared" may be indicated against the relevant entry_)						
	Living rooms	No.		(e) Latrines	No.		
		Floor space (in sq.mt.)			Floor space (in sq.mt.)		
	Kitchen rooms	No.		(f) Any other rooms	No.		
		Floor space (in sq.mt.)			Floor space (in sq.mt.)		
	Store rooms	No.		(g) Covered Varandah	No.		
		Floor space (in sq.mt.)			Floor space (in sq.mt.)		
	Bath rooms	No.		(h) un-covered varandah	No.		
		Floor space (in sq.mt.)			Floor space (in sq.mt.)		
2.	Court yard:no court yard-1;if court yard: no access-2 independent-3, not ndependent-4						
3.	Drinking water supply: (outside dwelling-1; outside but within premises-2; If inside: independent-3; not independent-4						
4.	Drinking water source: (tap inside dwelling-1; tap outside dwelling-2; well with hand pump-3, well without hand pump-4; tubewell-5, others-6 (specify)						
5.	Latrine:(within dwelling-1,outside but within premises-2; outside premises-3; no Latrine-4.						
6.	Latrine type: (flush system-1; septic tank system-2; others-3 (specify).						
7.	Electricity: (provided-1; not provided-2						
8.	Particulars of furniture, electric fan etc. if provided by the landlord						
9.	Whether any change has occurred in the above characteristics (1-8) since the date of last enquiry, if so, please give details:						
10.	Nature of occupation: owned (including hire purchase)-1, on usual rent-2; subject to rent control-3.						

4. House rent and particulars of tenancy			
1.	A. Average monthly rent payable to land lord for the dwelling Rs.(0.00)_____ B. Whether the dwelling is provided by employer? Yes/No C. Whether the rent of dwelling is concessional? Yes/No		
2.	Whether charges included in rent	Yes-1 No-2	If 1 in col. (3) avg. monthly charges (Rs.0.00)
	(a) electricity charges		
	(b) water charges		
	(c) sweeper's charges		
	(d) any other charges (specify) $^{\alpha}$		
3.	Whether separate charges payable by tenant(s) other than rent	Yes-1 No-2	If 1 in col. (3) avg. monthly charges (Rs.0.00)
	(a) electricity charges		
	(b) water charges		
	(c) sweeper's charges		
	(d) taxes (municipal, corporation, road etc.)		
	(e) any other charges (specify) $^{\alpha}$		

4. Particulars of repair (excluding improvements, additions which alter the quality of the dwelling) charges incurred by tenant(s)				
	Periodicity of repairs:	Month and	Total	Average**

Repairs	Biennial-1; Annual-2; Half yearly-3; On regular periodicity-4; Others(specify)-5	year during which repairs were carried out	amount spent on repairs	amount of expenses (Rs.0.00)
(1)	(2)	(3)	(4)	(5)
a) White washing				
b) Repairs of (i) doors & windows				
(ii) flooring, ceiling & walls				
(iii) roof				
any other part of the dwelling (specify)				

α Other than those covered by item-4 of block-4

** The figures in col. (5) is to be derived by dividing figures in col.(4) by the total number of months in the period indicated in col.2.

5. Particulars of tenancy in the dwelling			
Sr. no.	Category (tenant-1; Sub-tenant-2)	Tenancy directly under (owner of house-1; any other tenant-2; other agent-3	Period of residence in the dwelling upto the date of survey (months)
(1)	(2)	(3)	(4)
6.	Total number of residents in the dwelling: (a) Adults:		
	(b) Children:		
7.	Rent payable to the landlord for the same dwelling on the last date of survey (i.e six months prior to the reference months (Rs.0.00)		_____
8.	If the rent has changed since the last date of survey, specific reason, if any, for the same may be indicated		
9.	Mode of payment: (monthly-1; quarterly-2; annual-3; others-4 (specify)		

5.A Investigator			**5.B Inspection & field scrutiny**		
1.	Name:		1.	Name:	
2.	Date: Survey:		2.	Date: Inspection:	
3.	Time taken for interview (hrs.0.00):		3.	Time taken Inspection (hrs.0.00):	
4.	Time taken for others:		4	Date of receipt:	
5.	Date of despatch of Schedules:		5.	Date of scrutiny:	
6.	Signature:		6.	Time taken for scrutiny:	
			7.	Time taken for others:	

			8.	Date of despatch of schedules:	

[7] Sketch map of dwelling

			9.	Signature:	

Note: If there is any change in the composition of the dwelling from that of the preceding visit, a sketch map of the dwelling may be furnished on a separate piece of paper and attached to the schedule with proper reference.

[6] Difficulties experienced and remarks	
(a) Investigator	(b) Supervising Officer

Annexure IV

State-wise distribution of villages covered under CPI(AL)/CPI(RL) on base 1986-87

Sl. No.	State	No. of Regions	No. of Villages
1.	Andhra Pradesh	4	54
2.	Assam	3	27
3.	Bihar	3	39
4.	Gujarat	5	30
5.	aryana	2	12
6.	Himachal Pradesh	1	9
7.	Jammu & Kashmir	3	21
8.	Karnataka	4	36
9.	Kerala	2	21
10.	Madhya Pradesh	7	69
11.	Maharashtra	6	54
12.	Manipur	2	9
13.	Meghalaya	1	9
14.	Orissa	3	33
15.	Punjab	2	15
16.	Rajasthan	4	21
17.	Tamil Nadu	4	33
18.	Tripura	1	9
19.	Uttar Pradesh	5	60
20.	West Bengal	4	39
	Total	**66**	**600**

Annexure V

Specimen Weighting Diagram

(I)	Item weights							
Code (as used in the survey)	Description	Av. Monthly Exp per household	Share in total Exp	Share in Sub group Exp	% of households reporting Exp.	Merged share	Merged codes	Item weight
	Cereals and products							
108	**wheat/atta-other sources**	172.44	2.72	36.79	86	36.79		**36.8414**
102	**rice - other sources**	166.39	2.63	35.50	89	35.88	104, 105, 106	**35.9377**
491	**grinding charges**	35.85	0.57	7.65	89	7.65		**7.6593**
115	**jowar & products**	31.07	0.49	6.63	32	6.63		**6.6380**
113	**bread (bakery)**	15.81	0.25	3.37	40	3.37		**3.3778**
139	**cereal substitutes**	8.71	0.14	1.86	42	1.86		**1.8609**
103	**chira**	7.55	0.12	1.61	40	1.61		**1.6130**
107	**wheat/atta-P.D.S.**	7.42	0.12	1.58	7	1.58		**1.5853**
116	**bajra & products**	7.41	0.12	1.58	9	1.58		**1.5831**
111	**suji, rawa**	6.02	0.10	1.28	44	1.28		**1.2862**
101	**rice- P.D.S.**	3.88	0.06	0.83	6	0.83		**0.8290**
114	**other wheat products**	0.68	0.01	0.15	1	0.79	110, 112	**0.7884**
								100.0000
104	khoi, lawa	0.12	0.00	0.03	1			
105	muri	0.87	0.01	0.19	5			
106	other rice products	0.83	0.01	0.18	3			
110	maida	1.24	0.02	0.26	9			
112	sewai, noodles	1.77	0.03	0.38	5			
117	maize & products	0.1	0.00	0.02	0			
118	barley & products	0.08	0.00	0.02	0			
120	small millets & products	0.3	0.00	0.06	2			
121	ragi & products	0.01	0.00	0.00	0			
122	other cereals	0.2	0.00	0.04	1			
	Pulses and products							
140	**arhar, tur**	55.53	0.88	47.45	91	47.51	148	**47.6517**
143	**moong**	18.06	0.29	15.43	71	15.43		**15.4782**
141	**gram (split)**	13.63	0.22	11.65	59	12.58	151	**12.6157**
144	**masur**	7.44	0.12	6.36	35	6.36		**6.3764**
150	**other pulses**	5.7	0.09	4.87	23	4.87		**4.8852**
152	**besan**	5.1	0.08	4.36	30	4.36		**4.3709**
145	**urd**	4.15	0.07	3.55	24	3.55		**3.5567**
142	**gram (whole)**	2.3	0.04	1.97	14	1.97		**1.9712**
146	**peas**	1.96	0.03	1.67	16	1.67		**1.6798**
153	**other pulse products**	1.65	0.03	1.41	10	1.41		**1.4141**
								100.0000
147	soyabean	0.36	0.01	0.31	2			
148	khesari	0.07	0.00	0.06	0			
151	gram products	1.09	0.02	0.93	4			
	Milk and milk products							
160	**milk: liquid (litre)**	313.08	4.94	92.64	91	92.82	162	**93.9253**
164	**ghee**	14.5	0.23	4.29	13	5.01	165	**5.0717**
163	**curd**	3.35	0.05	0.99	15	0.99		**1.0030**

								100.0000
161	baby food	0.46	0.01	0.14	0			
162	milk: condensed/powder	0.64	0.01	0.19	1			
165	butter	2.44	0.04	0.72	4			
166	ice-cream	2.4	0.04	0.71	3			
167	other milk products	1.1	0.02	0.33	3			
								100.0000
	Oils and fats							
172	**groundnut oil**	92.43	1.46	47.73	42	47.73		**47.9608**
174	**edible oil(others**	88.52	1.40	45.71	49	45.71		**45.9319**
170	**vanaspati/ margarine**	6.48	0.10	3.35	14	3.35		**3.3624**
171	**mustard oil**	5.29	0.08	2.73	3	2.73		**2.7449**
173	coconut oil	0.94	0.01	0.49	1			
								100.0000
	Meat, fish and egg							
182	goat meat/mutton	42.81	0.68	36.74	30	36.74		**36.8797**
181	fish, prawn	29.01	0.46	24.89	24	24.89		**24.9914**
185	chicken	22.07	0.35	18.94	27	18.94		**19.0127**
180	eggs (no.)	12.44	0.20	10.68	38	10.68		**10.7167**
183	beef/ buffalo meat	9.75	0.15	8.37	7	8.37		**8.3994**
								100.0000
184	pork	0.41	0.01	0.35	0	0.00		
186	others (birds,crab etc.)	0.04	0.00	0.03	0	0.00		
	Vegetables							
191	onion	21.77	0.34	10.08	92	10.08		**10.5495**
190	potato	21.01	0.33	9.72	92	9.72		**10.1812**
222	garlic (gm)	9.47	0.15	4.38	90	4.38		**4.5890**
223	ginger (gm)	6.93	0.11	3.21	81	3.21		**3.3582**
193	carrot	3.65	0.06	1.69	31	1.69		**1.7687**
	Root vegetables							**30.4467**
192	radish	1.89	0.03	0.87	20			
194	turnip	0.02	0.00	0.01	0			
195	beet	0.51	0.01	0.24	5			
196	sweet potato	0.37	0.01	0.17	3			
197	arum	0.16	0.00	0.07	2			
	Fresh vegetables							
214	**tomato**	21.51	0.34	9.96	92	9.96		**10.3340**
210	**brinjal**	15.95	0.25	7.38	85	7.38		**7.6628**
207	**cauliflower**	14.25	0.22	6.60	72	6.60		**6.8461**
208	**cabbage**	12.85	0.20	5.95	79	5.95		**6.1735**
211	**lady's finger**	12	0.19	5.55	67	5.55		**5.7651**
224	**other vegetables**	7.78	0.12	3.60	52	3.60		**3.7377**
216	**chillis (green)**	7.22	0.11	3.34	89	3.34		**3.4687**
213	**french beans and barbati**	6.75	0.11	3.12	51	3.12		**3.2429**
202	**cucumber**	6.09	0.10	2.82	44	2.82		**2.9258**
201	**bitter gourd**	4.57	0.07	2.12	42	2.12		**2.1955**
204	**jhinga / torai**	4.24	0.07	1.96	33	1.96		**2.0370**
200	**gourd**	3.9	0.06	1.81	33	1.81		**1.8737**
221	**lemon (no.)**	3.66	0.06	1.69	59	1.69		**1.7584**
215	**peas**	3.54	0.06	1.64	22	1.64		**1.7007**
198	**pumpkin**	2.66	0.04	1.23	22	1.23		**1.2779**
								60.9998
203	parwal / patal	1.75	0.03	0.81	14			
205	snake gourd	1.09	0.02	0.50	9			
206	papaya (green)	0.14	0.00	0.06	1			
217	capsicum	1.45	0.02	0.67	15			
218	plantain (green)	0.24	0.00	0.11	2			
220	jackfruit (green)	0.15	0.00	0.07	2			

212	palak/other leafy vegs.	18.48	0.29	8.55	86	8.55		**8.5536**
	Leafy vegetables							**8.5536**
								100.0000
	Fruits							
245	**apple**	23.63	0.37	15.59	38	15.59		**15.9159**
230	**banana (no.)**	20.11	0.32	13.27	76	13.27		**13.5450**
240	**mango**	14.73	0.23	9.72	16	9.72		**9.9213**
234	**coconut (no.)**	14.21	0.22	9.38	43	9.38		**9.5711**
247	**other fresh fruits**	10.25	0.16	6.76	36	6.76		**6.9038**
246	**grapes**	6.4	0.10	4.22	20	4.22		**4.3107**
237	**orange, mausami (no.)**	3.79	0.06	2.50	12	2.50		**2.5527**
238	**papaya**	2.75	0.04	1.81	13	1.81		**1.8522**
232	**watermelon**	2.27	0.04	1.50	9	1.50		**1.5289**
235	**guava**	1.78	0.03	1.17	14	1.17		**1.1989**
233	**pineapple (no.)**	1.73	0.03	1.14	7	1.14		**1.1652**
	Fresh fruits							**68.4659**
231	jackfruit	0.03	0.00	0.02	0			
236	singara	0.11	0.00	0.07	1			
241	kharbooza	0.8	0.01	0.53	4			
242	pears (naspati)	0.47	0.01	0.31	1			
243	berries	0.49	0.01	0.32	4			
244	leechi	0.21	0.00	0.14	0			
	Dry fruits/nuts							
251	**groundnut**	20.43	0.32	13.48	66	13.48		**14.2974**
250	**coconut (copra)**	12.53	0.20	8.27	46	8.27		**8.7688**
253	**cashewnut**	4.01	0.06	2.65	8	2.65		**2.8063**
256	**raisin, kishmish etc.**	3.69	0.06	2.43	11	2.43		**2.5824**
257	**other dry fruits**	2.64	0.04	1.74	5	1.74		**1.8475**
252	**dates**	1.76	0.03	1.16	6	1.16		**1.2317**
	Dry fruits							**31.5341**
254	walnut	1.34	0.02	0.88	2			
255	other nuts	1.39	0.02	0.92	4			
								100.0000
	Sugar etc							
261	**sugar - other sources**	72.5	1.14	94.14	93	94.18	263	**94.4032**
262	**gur**	3.93	0.06	5.10	24	5.10		**5.1152**
260	**sugar - P.D.S.**	0.37	0.01	0.48	1	0.48		**0.4816**
								100.0000
263	candy, misri	0.03	0.00	0.04	0			
264	honey	0.18	0.00	0.23	0			
	Condiments and spices							
286	**other spices (gm)**	18.26	0.29	30.18	90	30.18		**30.4791**
282	**dry chillies(gm)**	14.36	0.23	23.74	88	23.74		**23.9693**
280	**turmeric (gm)**	7.66	0.12	12.66	93	12.66		**12.7858**
284	**curry powder (gm)**	6.6	0.10	10.91	45	10.91		**11.0165**
279	**salt**	6.44	0.10	10.64	94	10.64		**10.7495**
285	**oilseeds (gm)**	4.83	0.08	7.98	65	7.98		**8.0621**
281	**black pepper(gm)**	1.76	0.03	2.91	21	2.91		**2.9377**
								100.0000
283	tamarind (gm)	0.59	0.01	0.98	11			
	Non-alcoholic beverages							
290	**tea: cups (no.)**	66.52	1.05	49.12	68	49.12		**49.3545**
291	**tea leaf (gm)**	52.06	0.82	38.45	92	38.45		**38.6259**
298	**other beverages**	5.05	0.08	3.73	7	3.73		**3.7468**
295	**cold beverages**	4.41	0.07	3.26	9	3.32	294	**3.3314**
296	**fruit juice and shake**	2.61	0.04	1.93	4	1.93		**1.9365**

293	**coffee: powder(gm)**	2.11	0.03	1.56	6	1.56		**1.5655**
297	**coconut: green(no.)**	1.94	0.03	1.43	4	1.43		**1.4394**
								100.0000
292	coffee: cups(no.	0.63	0.01	0.47	2			
294	ice	0.08	0.00	0.06	0			
	Prepared meals etc							
303	**cooked meals (no.)**	85.45	1.35	43.25	13	43.25		**43.2505**
308	**other processed food**	43.44	0.69	21.99	45	23.56	306, 307	**23.5613**
300	**biscuits**	23.83	0.38	12.06	70	12.37	304	**12.3703**
301	**salted refreshments**	22.32	0.35	11.30	53	11.30		**11.2973**
302	**prepared sweets**	14.82	0.23	7.50	19	7.50		**7.5011**
305	**pickles (gm)**	3.99	0.06	2.02	30	2.02		**2.0195**
								100.0000
304	cake, pastry	0.61	0.01	0.31	0			
306	sauce (gm)	1.89	0.03	0.96	7			
307	jam, jelly (gm)	1.22	0.02	0.62	3			
	Pan, tobacco and intoxicants							
311	**pan : finished (no.)**	8.46	0.13	12.61	8	13.82	313, 314	**13.8193**
312	**supari (gm)**	1.99	0.03	2.97	14	2.97		**2.9666**
315	**other ingr. for pan**	1.85	0.03	2.76	13	2.76		**2.7579**
310	**pan : leaf (no.)**	0.92	0.01	1.37	4	1.37		**1.3715**
313	lime (gm)	0.52	0.01	0.78	21			
314	katha (gm)	0.29	0.00	0.43	4			
321	**cigarettes (no.)**	10.42	0.16	15.53	5	15.53		**15.6284**
320	**bidi (no.)**	5.27	0.08	7.86	8	7.86		**7.9042**
327	**other tobacco products**	4.22	0.07	6.29	6	6.29		**6.3294**
326	**zarda kimam surti**	3.42	0.05	5.10	10	5.10		**5.1295**
322	**leaf tobacco**	2.91	0.05	4.34	13	4.34		**4.3646**
323	snuff (gm)	0.08	0.00	0.12	1			
324	hookah tobacco	0.03	0.00	0.04	0			
325	cheroot (no.)	0.05	0.00	0.07	0			
332	**country liquor(litre)**	14.34	0.23	21.38	7	21.38		**21.9710**
334	**foreign/refd. liqr (ltr)**	9.22	0.15	13.74	3	13.74		**14.1264**
333	**beer (litre)**	2.37	0.04	3.53	1	3.53		**3.6312**
330	ganja (gm)	0.02	0.00	0.03	0			
331	toddy (litre)	0.59	0.01	0.88	0			
335	other intoxicants	0.11	0.00	0.16	0			
								100.0000
	Fuel and light							
342	**electricity**	248.01	3.92	49.42	93	49.42		**49.9084**
348	**L.P.G.**	163.62	2.58	32.61	64	32.61		**32.9262**
345	**kerosene - other sources**	33.77	0.53	6.73	29	6.73		**6.7957**
341	**firewood and chips**	25.81	0.41	5.14	21	5.27	343	**5.3227**
344	**kerosene - P.D.S.**	17.78	0.28	3.54	23	3.54		**3.5780**
460	**elec. bulb tube-light**	3.99	0.06	0.80	14	0.80		**0.8029**
346	**matches (box)**	3.31	0.05	0.66	92	0.66		**0.6661**
								100.0000
340	coke	0.37	0.01	0.07	0			
343	dung cake	0.64	0.01	0.13	2			
347	coal	0.57	0.01	0.11	1			
350	charcoal	0.42	0.01	0.08	1			
351	candle	1.71	0.03	0.34	21			
352	gobar gas	0.03	0.00	0.01	0			
353	other fuel	1.78	0.03	0.35	2			
				100.00		99.03		**100.0000**
	Clothing and bedding							

368	**ready-made garments**	92.26	1.46	48.95	17	48.95		**49.3428**
361	**sari**	29.53	0.47	15.67	6	15.67		**15.7933**
362	**cloth for shirt etc.**	23.84	0.38	12.65	6	12.65		**12.7502**
363	**cloth for trousers etc.**	14.15	0.22	7.51	4	7.51		**7.5677**
367	**hosiery articles**	8.57	0.14	4.55	8	4.55		**4.5834**
366	**gamchha, towel etc.**	1.92	0.03	1.02	4	1.02		**1.0269**
364	**chaddar shawl etc.**	1.6	0.03	0.85	1	0.85		**0.8557**
373	**clothing: others**	1.13	0.02	0.60	1	0.60		**0.6044**
360	dhoti	0.19	0.00	0.10	0	0.00		
365	lungi	0.84	0.01	0.45	1	0.00		
370	headwear	0.14	0.00	0.07	0	0.00		
374	clothing: second hand	0.22	0.00	0.12	0	0.00		
371	**knitted garments etc.**	2.04	0.03	1.08	1	1.10	372	**1.1036**
372	knitting wool etc.	0.04	0.00	0.02	0			
380	**bed sheet, bed cover**	5.37	0.08	2.85	3	2.85		**3.1306**
381	**rug, blanket**	2.7	0.04	1.43	1	1.43		**1.5741**
382	**pillow, quilt mattress**	1.62	0.03	0.86	0	0.86		**0.9444**
383	**cloth for curtain etc**	1.24	0.02	0.66	0	0.66		**0.7229**
								100.0000
384	mosquito net	0.08	0.00	0.04	0			
385	mats and matting	0.76	0.01	0.40	1			
386	cotton	0	0.00	0.00	0			
387	bedding: others	0.24	0.00	0.13	0			
	Footwear							
391	**leather sandals etc.**	10.73	0.17	33.00	5	33.00		**32.9951**
393	**rubber/PVC footwear**	8.79	0.14	27.03	9	27.03		**27.0295**
390	**leather boots shoes**	7.64	0.12	23.49	2	23.49		**23.4932**
394	**other footwear**	3.32	0.05	10.21	2	10.21		**10.2091**
392	**other leather footwear**	2.04	0.03	6.27	1	6.27		**6.2731**
								100.0000
	Housing							
539	**Hous rent-self owned**	1305.33	20.61	76.38	68	76.38		**76.3789**
520	**Hous rent-Rented**	183.37	2.90	10.73	29	10.73		**10.7295**
522	**other consumer rent**	99.01	1.56	5.79	15	5.79		**5.7934**
642	**Res buildg & land(repair)**	58.93	0.93	3.45	2	3.45		**3.4482**
540	**water charges**	32.22	0.51	1.89	45	1.89		**1.8853**
541	**other cons tax & cesses**	30.16	0.48	1.76	35	1.76		**1.7648**
								100.0000
	Education							
404	**tuition and other fees**	95.74	1.51	47.68	21	47.68		**47.6840**
405	**private tutor/coaching**	39.23	0.62	19.54	11	19.54		**19.5388**
401	**newspapers periodicals**	27.57	0.44	13.73	35	13.73		**13.7314**
403	**stationery**	18.03	0.28	8.98	30	8.98		**8.9800**
400	**books, journals**	15.41	0.24	7.68	9	7.80	402	**7.7996**
406	**other educational expns**	4.55	0.07	2.27	3	2.27		**2.2662**
								100.0000
402	library charges	0.25	0.00	0.12	1			
	Medical care							
410	**medicine**	195.62	3.09	61.85	61	61.85		**61.9149**
412	**doctor's/surgeon's fee**	48.63	0.77	15.38	40	15.38		**15.3917**
413	**hospital/nurs home charge**	29.63	0.47	9.37	1	9.37		**9.3781**
411	**X-ray,ECG,path test etc.**	26.63	0.42	8.42	4	8.42		**8.4285**
414	**other medical expenses**	15.44	0.24	4.88	2	4.88		**4.8868**
								100.0000
423	family plang appliances	0.12	0.00	0.04	0			
620	hearing aids, orth equip	0.21	0.00	0.07	0			
621	other medical equipment	0	0.00	0.00	0			

	Recreation and amusement							
437	**cable TV conection**	89.99	1.42	72.14	46	72.14		**73.8410**
562	**television**	8.02	0.13	6.43	1	6.43		**6.5808**
430	**cinema, theatre**	6.85	0.11	5.49	6	5.49		**5.6207**
432	**sports goods toys etc.**	3.7	0.06	2.97	3	2.97		**3.0360**
493	**pets (incl. birds fish)**	3.32	0.05	2.66	1	2.66		**2.7242**
565	**tape recorder CD player**	2.79	0.04	2.24	0	2.24		**2.2893**
438	**other entertainment**	2.75	0.04	2.20	2	2.20		**2.2565**
436	**video castt. (hire)**	1.56	0.02	1.25	1	1.25		**1.2801**
435	**photography**	1.5	0.02	1.20	2	1.20		**1.2308**
563	**VCR/VCP**	1.39	0.02	1.11	0	1.11		**1.1406**
								100.0000
433	club fees	1.24	0.02	0.99	0			
434	goods for recrn/hobbies	0.43	0.01	0.34	0			
560	gramophone etc.	0	0.00	0.00	0			
561	radio	0.09	0.00	0.07	0			
564	camera & photo equipment	0.04	0.00	0.03	0			
566	record, a/v castt	0.84	0.01	0.67	1			
567	musical instruments	0	0.00	0.00	0			
568	other goods for recrn	0.23	0.00	0.18	0			
	Transport and communication							
508	**petrol**	128.11	2.02	21.62	23	21.62		**21.8823**
502	**bus/tram fare**	95.2	1.50	16.07	51	16.07		**16.2610**
501	**railway fare**	68.56	1.08	11.57	28	11.57		**11.7106**
503	**taxi/auto-rickshaw fare**	40.43	0.64	6.82	31	6.82		**6.9058**
611	**motor cycle scooter**	23.02	0.36	3.89	4	4.33	612, 613	**4.3812**
512	**school bus/van**	6.57	0.10	1.11	2	1.11		**1.1222**
511	**lubricating oil**	5.74	0.09	0.97	8	0.97		**0.9804**
510	**diesel**	3.29	0.05	0.56	0	0.56		**0.5620**
610	**bicycle**	3.18	0.05	0.54	9	0.54		**0.5432**
500	**airway fare**	2.61	0.04	0.44	0	0.44		**0.4458**
504	steamer/boat fare	0	0.00	0.00	0			
505	rickshaw (manual) fare	1.31	0.02	0.22	1			
506	horse cart fare	0.06	0.00	0.01	0			
507	porter charges	1.43	0.02	0.24	0			
513	other hired conveyance	1.73	0.03	0.29	1			
612	motor car, jeep	1.56	0.02	0.26	0			
613	tyres & tubes	1.07	0.02	0.18	1			
614	other transport equip.	0.05	0.00	0.01	0			
488	**telephone charges**	207.66	3.28	35.05	72	35.21	487	**35.2056**
								100.0000
487	postage &telegram	0.94	0.01	0.16	3			
	Personal care and effects							
450	**toilet soap**	43.35	0.68	24.06	99	24.06		**24.6910**
451	**toothbrush paste etc.**	29.76	0.47	16.51	95	16.51		**16.9505**
453	**hair oil, shampoo etc.**	27.48	0.43	15.25	94	15.25		**15.6519**
632	**personal computer**	17.16	0.27	9.52	0	9.52		**9.7739**
452	**powder, snow, cream**	13.91	0.22	7.72	44	7.72		**7.9228**
471	**flower(fresh)**	10.7	0.17	5.94	34	5.94		**6.0944**
455	**shaving blades, razor**	9.42	0.15	5.23	69	5.23		**5.3654**
458	**other toilet articles**	7.24	0.11	4.02	25	4.02		**4.1237**
457	**sanitary napkins**	4.55	0.07	2.52	13	2.52		**2.5916**
633	**mobile phone handset**	4.16	0.07	2.31	0	2.31		**2.3694**
456	**shaving cream**	3.58	0.06	1.99	20	1.99		**2.0391**
443	**umbrella raincoat**	2.32	0.04	1.29	2	1.29		**1.3214**
634	**any other personal goods**	1.94	0.03	1.08	0	1.08		**1.1050**

								100.0000
440	spectacles	1.2	0.02	0.67	0			
441	torch	0.21	0.00	0.12	0			
442	lock	0.09	0.00	0.05	0			
444	lighter(cigar/gas stove	0.12	0.00	0.07	0			
445	oth goods for pers. Care	1.28	0.02	0.71	4			
454	comb	0.11	0.00	0.06	1			
630	clock, watch	1.62	0.03	0.90	1			
631	oth machines for hh work	0	0.00	0.00	0			
	Household requisites							
480	**domestic servant/cook**	63.64	1.00	22.54	13	22.54		**24.8158**
467	**washing soap/soda**	55.43	0.88	19.64	99	19.64		**21.6143**
492	**miscellaneous expenses**	34.18	0.54	12.11	41	12.11		**13.3281**
570	**gold ornaments**	17.3	0.27	6.13	0	6.13		**6.7460**
470	**agarbati**	15.81	0.25	5.60	82	5.60		**6.1649**
472	**insecticide acid etc.**	13.58	0.21	4.81	36	4.81		**5.2954**
468	**other washing requisite**	11.73	0.19	4.16	55	4.16		**4.5740**
473	**other petty articles**	10.48	0.17	3.71	34	3.71		**4.0866**
494	**other cons services**	9.82	0.16	3.48	10	3.48		**3.8292**
598	**refrigerator**	7.61	0.12	2.70	0	2.70		**2.9674**
557	**other furniture & fixtrs**	6.77	0.11	2.40	0	2.40		**2.6399**
481	**sweeper**	4.12	0.07	1.46	4	1.46		**1.6066**
573	**other ornaments**	3.43	0.05	1.22	0	1.22		**1.3375**
571	**silver ornaments**	2.55	0.04	0.90	0	0.90		**0.9943**
461	electric batteries	0.48	0.01	0.17	3			
462	other non-dur elec goods	0.15	0.00	0.05	0			
463	earthenware	0.64	0.01	0.23	2			
464	glassware	0.38	0.01	0.13	0			
465	bucket, bottle etc.	0.99	0.02	0.35	2			
466	coir, rope etc.	0.06	0.00	0.02	0			
490	repair charge (non-dur)	0.87	0.01	0.31	3			
550	bedstead	0.62	0.01	0.22	0			
551	almirah dressing table	2.16	0.03	0.77	0			
552	chair, bench, table etc.	1.98	0.03	0.70	0			
553	suitcase etc. travel goods	0.93	0.01	0.33	0			
554	foam rubber cushion	0.42	0.01	0.15	0			
555	carpet, daree etc.	0.09	0.00	0.03	0			
556	paintings, drawings etc.	0.57	0.01	0.20	0			
572	jewels pearls	0	0.00	0.00	0			
580	stainless steel utensils	2.19	0.03	0.78	1			
581	other metal utensils	0.24	0.00	0.09	0			
582	casseroles thermos etc.	0.02	0.00	0.01	0			
583	other crockery & utensils	1.57	0.02	0.56	1			
590	electric fan	0.69	0.01	0.24	0			
591	air conditioner	0.02	0.00	0.01	0			
592	air cooler	1.24	0.02	0.44	0			
593	lantern, lamp, lampshade	0	0.00	0.00	0			
594	sewing machine	2.21	0.03	0.78	0			
595	washing machine	1.84	0.03	0.65	0			
596	stove	1.58	0.02	0.56	2			
597	pressure cooker/pan	0.3	0.00	0.11	0			
600	elect iron & other	1.47	0.02	0.52	0			
640	Bathroom & sanitary equip	0.54	0.01	0.19	0			
641	Plugs, switches etc.	0.12	0.00	0.04	0			
643	Other durables	1.02	0.02	0.36	0			
645	other cooking/hh applians	0.45	0.01	0.16	0			
	Others							

482	**barber beautician etc.**	32.83	0.52	49.55	82	49.55		**49.5472**
483	**washerman laundry ironing**	22.67	0.36	34.21	29	34.21		**34.2137**
484	**tailoring**	10.76	0.17	16.24	5	16.24		**16.2391**
								100.0000
	Note: Bolded items are included in the weighting diagram							

(II) Group and Sub Group weights

	Group/ Sub group	**Sub Group Weight**		**Group weight**
	Cereals and products	21.9132		
	Pulses and products	5.4714		
	Milk and milk Products	15.7995		
	Edible oils and fats	9.0533		
	Egg, fish and meat	5.4476		
	Vegetables	10.0999		
	Fruits	7.0847		
	Sugar etc	3.6001		
	Condiments and spices	2.8283		
	Non-Alcoholic Beverages	6.3302		
	Prepared meals etc	9.2360		
	Pan,tobacco, intoxicants	3.1359		
	Food	100.0000		**33.7719**
	Fuel and light			**7.9225**
	Clothing & Bedding	85.2851		
	Footwear	14.7149		
	Clothing & bedding and footwear	100.0000		**3.4891**
	Housing			**26.9816**
	Education	11.3881		
	Medical care	17.9392		
	Recreation and amusement	7.0752		
	Transport and communication	33.6073		
	Personnal care and effects	10.2208		
	Household requisites	16.0113		
	Others	3.7582		
	Miscellaneous	100.0000		**27.8349**
	All Groups			**100.0000**

Price Collection in the Context of CPI compilation in Select Countries

United States

Three types of CPI numbers are compiled : (i) CPI-W for wage earners and clerical workers households covering 32% of the population, (ii) CPI-U covering 87% of the urban population including wage earners and clerical workers households.(iii) Chained CPI –U. The bases of the CPI-W and CPI-U are 1982-84, the base of Chained CPI(U) is 1999=100. Prices are collected from 87 locations covering approximately 50,000 housing units and 23,000 establishments, supermarkets, departmental stores fuel stations, hospitals dentists, etc. Prices of fuel and few other items are collected every month in all the 87 locations. Prices for most other commodities are collected every month in three largest geographic locations and every other month from other areas. Prices are collected by trained staff of Bureau of Labor Statistics, USA through personal visits or through telephones. Prices are averaged location-wise with appropriate weights, local data is then combined to get US city average. CPI numbers are compiled by size of the city and region wise as also for 27 local areas.

Indonesia

The base of the current series is 2007. The Cost of Living Survey conducted for derivation of weighting diagram covered 66 cities. Updation of CPI series is done every five years. Collection is organized in 45 cities; 30 provincial capitals and15 other big cities. Prices are collected from about 50,000 sellers in large cities and rural areas, Total respondents are approximately 11,000 Item baskets consist of 293-397 goods and services. Price of rice is collected in Jakarta daily. Prices of basic necessities are collected weekly on Mondays and Tuesdays. Prices of some food items are collected every two weeks on Wednesdays and Thursdays. Prices of other items are collected on monthly basis around 15th for three days. Prices of durables collected monthly during 5-15; services monthly during 1-10; house rent monthly during 1-10 and Education monthly during 1-10.

Lao PDR

The base of the current CPI is 1999. The Expenditure and Consumption Survey for derivation of Weighting diagram was carried out during 1997-98 in five provinces in 8882 households. The five provinces covered in Expenditure and consumption Survey accounted for 60% of the total population. The price collection is done from 12 markets in eight provinces. Item basket consists of 197 items classified in 9 major groups and 32 subgroups. Prices collected are free market prices including discounts. Price collection is done during 15-20 of the month and compilation takes place during 21-25 of the month. The index is released on 28 th of the month.

Pakistan

The base on the current series is 2000-01.The index covers all occupations and is compiled for four income groups namely (i) up to 3000 , (ii) 3001-5000 , (iii) 5001-12,000, and (iv) more than 12,000.Item basket comprises of 374items of goods and services classified into ten commodity groups. Prices are collected from 71 markets in 35 cities. Index is released on the 9th of the following month.

Philippines

The base of the current CPI series is 2000. The Family Income and Expenditure survey for construction of the weighting diagrams conducted covered 41,000 households in the country. Two item baskets one for upper 70 percent population and other for bottom 30 percent population were constructed. Inclusion of items in the market basket was decided on the basis of number of households reporting expenditure on the item. The basket at the national level was obtained by combining the two baskets. For price collection purposes, three types of areas have been identified: (i) Metro Manila, (ii) Selected cities , and (iii) Areas out side Metro Manila. The price collection is done twice a month. In the first phase prices are collected during the first five days of the month. The price collection in the second phase is organized during 15-17. Approximately 4,59,000 price quotations are collected each month Index is compiled using laspeyre's formula. and is released on the 5th of the following month.

Sri Lanka

There does not seem to be a national CPI series. The Series is called Colombo Consumer Price Index. The base of earlier series was !952. Weights were based on the survey conducted during 1949-50 covering 455 households in Colombo. Another Household Income and Expenditure survey was conducted covering households in urban Colombo. Prices are collected from 12 centres. The new series has been released in September, 2010. It is planned to release the Index every month on a regular basis.

United Kingdom

The base of the current CPI as well as RPI series is 2005.Before 10 th December ,2003, it was known as Harmonised Index of Consumer Price. The most recent year to which the contents relate is 2010.The weights and items baskets are revised every year to reflect the current consumption spending by households. The weights for CPI are determined on basis of National Accounts Statistics relating to Final Household Consumption Expenditure. The item basket consist of approximately 650 items .Prices are collected from 1,20,000 different retailing outlets every month. The Index is released around middle of the following month. It is main domestic indicator for measuring inflation for macroeconomic purposes.

Annexure VII

Terminology and Definitions

(a) “Consumer goods” are goods or services that are used by households for the satisfaction of individual needs or wants.

(b) “Consumption expenditures” are expenditure on consumer goods and services and can be defined in terms of “acquisition”, “use”, or “payment”:-
– “acquisition” indicates that it is the total value of the goods and services acquired during a given period that should be taken into account, irrespective of whether they were wholly paid for or used during the period. This approach could be extended to include the estimated values of own -account production and social transfers in kind received from government or non-profit institutions. The prices enter the CPI in the period when consumers accept or agree prices, as distinct from the time payment is
made;
– “use” indicates that it is the total value of all goods and services actually consumed during a given period that should be taken into account; for durable goods this approach requires valuing the services provided by these goods during the period. The prices (opportunity costs) enter the CPI in the period of consumption;
– “payment” indicates that it is the total payment made for goods and services during a given period that should be taken into account, without regard to whether they were delivered or used during the period. The prices enter the CPI in the period or periods when the payment is made.

(c) “Scope of the index” refers to the population group, geographic areas, products and outlets for which the index is constructed.

(d) “Coverage” of the index is the set of goods and services represented in the index. For practical reasons, coverage may have to be less than what corresponds to the defined scope of the index.

(e) “Reference population” refers to that specific population group for which the index has been constructed.

(f) “Weights” are the aggregate consumption expenditures on any set of goods and services expressed as a proportion of the total consumption expenditures on all goods and services within the scope of the index in the weight reference period. They are a set of figures summing-up to unity.

(g) “Price updating of weights” is a procedure that is used to bring the expenditure weights in line with the index or price reference period. The price updated weights are calculated by multiplying the weights from the weight reference period by elementary indices measuring the price changes between weight reference and price reference period and rescaling to sum to unity.

(h) “Index reference period” is the period for which the value of the index is set at 100.0.

(i) “Price reference period” is the period whose prices are compared with the prices in the current period. The period whose prices appear in the denominators of the price relatives.

(j) The “weight reference period” is the period, usually a year, whose estimates of the volume of consumption and its components are used to calculate the weights.

(k) “Probability sampling” is the selection of a sample of units such as outlets or products, in such a way that each unit in the universe has a known non-zero probability of selection.

(l) “Cut-off sampling” is a sampling procedure in which a predetermined threshold is established with all units in the relevant population at or above the threshold being eligible for inclusion in

the sample and all units below the threshold being excluded. The threshold is usually specified in terms of the size of some relevant variable (such as some percentage of total sales), the largest sampling units being included and the rest excluded.

(m) “Quota sampling” is a non-probability method where the population is divided into certain strata. For each stratum, the number (“quota”) of elements to be included in the sample is specified. The price collector simply “fills the quotas” which means, in the case of outlet sampling, that the selection of the outlets is based on the judgment of the price collectors and the specified criteria.

(n) “Imputed expenditures” are the expenditures assigned to a product that has not been purchased, such as a product that has been produced by the household for its own consumption (including housing services produced by owner-occupiers), a product received as payment in kind or as a free transfer from government or non-profit institutions.

(o) “Imputed price” refers to the estimated price of a product whose price during a particular period has not been observed and is therefore, missing. It is also the price assigned to a product for which the expenditures have been imputed, refer (n) above.

(p) “Outlet” indicates a shop, market stall, service establishment, internet seller or other place where goods and/or services are sold or provided to consumers for non-business use.

(q) “Linking” means joining together two consecutive sequences of price observations or price indices that overlap in one or more periods, by rescaling one of them so that the value in the overlap period is the same in both sequences, thus combining them into a single continuous series.

(r) “Price” is defined as the value of one unit of a product, for which the quantities are perfectly homogeneous not only in a physical sense but also in respect of a number of other characteristics.

(s) “Pure price change” is that change in the price of a good or service which is not due to any change in its quality. When the quality does change, the pure price change is the price change remaining after eliminating the estimated contribution of the change in quality to the observed price change.

(t) “Quality adjustment” refers to the process of adjusting the observed prices of a product to remove the effect of any changes in the quality of that product over time so that pure price change may be identified.

(u) “Consumer substitution” occurs when consumers faced with changes in relative price, buy more of the good that has become relatively cheaper, and less of the good that has become relatively more expensive. It may occur between varieties of the same product or between different expenditure categories.

Quality Adjustment Methods

Implicit Quality Adjustment Method

1. The "overlap" method assumes that the entire price difference at a common point of time between the disappearing product and its replacement is due to a difference in quality.

2. The "overall mean imputation" method first calculates the average price change for an aggregate without the disappearing product and its replacement, and then uses that rate of price change to impute a price change for the disappearing product. It assumes that the pure price difference between the disappearing product and its replacement is equal to the average price changes for continuing (non-missing) products.

3. The "class mean imputation" method is a variant of the "overall mean imputation" method. The only difference is in the source of the imputed rate of price change to period t+1 for the disappearing product. Rather than using the average index change for all the non-missing products in the aggregate, the imputed rate of price change is estimated using only those price changes of the products that were judged essentially equivalent or were directly quality-adjusted.

Explicit Quality Adjustment Method

4. The "expert's adjustment" method relies on the judgment of one or more industry experts, commodity specialists, price statisticians or price collectors on the value of any quality difference between the old and replacement product. None, some, or all of the price difference may be attributed to the improved quality.

5. The "differences in production costs" approach relies on the information provided by the manufacturers on the production costs of new features of the replacements (new models), to which retail mark-ups and associated indirect taxes are then added. This approach is most practicable in markets with a relatively small number of producers, with infrequent and predictable model updates. However, it should be used with caution as it is possible for new production techniques to reduce costs while simultaneously improving quality.

6.The "quantity adjustment" method is applicable to products for which the replacement product is of a different size to the previously available one. It should only be used if the difference in quantities does not have an impact on the quality of
the good.

7. The "option cost" method adjusts the price of the replacements for the value of the new observable characteristics. An example of this is the addition of a feature that earlier has been a priced option as standard to a new automobile model.

8. A "hedonic" regression method estimates the price of a product as a function of the characteristics it possesses. The relationship between the prices and all relevant and observable price-determining characteristics is first estimated and then results are used in the estimation of the index.

Annexure IX

Types of Errors

1. "Quality change error" is the error that can occur as a result of the index's failure to make proper allowance for changes in the quality of goods and services.
2. "New goods error" is the failure to reflect either price changes in new products not yet sampled, or given a COLI objective, the welfare gain to consumers when those products appear.
3. "Outlet substitution error" can occur when consumers shift their purchases among outlets for the same product without proper reflection of this shift in the data collection for the index.
4. "New outlets error" is conceptually identical to new goods error. It arises because of the failure to reflect either price changes in new outlets not yet sampled, or the welfare gain to consumers when the new outlets appear.
5. "Upper level substitution error" arises when the index does not reflect consumer substitution among the basic categories of consumption owing to the use of an inappropriate method for aggregating elementary aggregates in the construction of the overall index value. Only relevant to a COLI, although an equivalent (representativity error) may be defined from the perspective of the pure price index.
6. "Elementary index error" arises from the use of an inappropriate method for aggregating price quotations at the lowest level of aggregation. The elementary index error can take two forms: formula error and lower level substitution error. The index suffers from formula error if, as a result of the properties of the formula, the result produced is biased relative to what would have been the result if a pure price change could have been estimated. The index suffers from lower level substitution error if it does not reflect consumer substitution among the products contained in the elementary aggregate.
7. "Selection error" arises when the sample of price observations is not fully representative of the intended population of outlets or products. The first four types of errors listed above, can be seen as special cases of this type of error.

Classification of Individual Consumption according to Purpose (COICOP)

(Breakdown of individual consumption expenditure of households by division and group)

01 Food and non-alcoholic beverages
01.1 Food
01.2 Non-alcoholic beverages

02 Alcoholic beverages, tobacco and narcotics
02.1 Alcoholic beverages
02.2 Tobacco
02.3 Narcotics

03 Clothing and footwear
03.1 Clothing
03.2 Footwear

04 Housing, water, electricity, gas and other fuels
04.1 Actual rentals for housing
04.2 Imputed rentals for housing
04.3 Maintenance and repair of the dwelling
04.4 Water supply and miscellaneous services related to the dwelling
04.5 Electricity, gas and other fuels

05 Furnishings, household equipment and routine household maintenance
05.1 Furniture and furnishings, carpets and other floor coverings
05.2 Household textiles
05.3 Household appliances
05.4 Glassware, tableware and household utensils
05.5 Tools and equipment for house and garden
05.6 Goods and services for routine household maintenance

06 Health
06.1 Medical products, appliances and equipment
06.2 Outpatient services
06.3 Hospital services

07 Transport
07.1 Purchase of vehicles
07.2 Operation of personal transport equipment
07.3 Transport services

08 Communication
08.1 Postal services
08.2 Telephone and telefax equipment
08.3 Telephone and telefax services

09 Recreation and culture
09.1 Audio-visual, photographic and information processing equipment
09.2 Other major durables for recreation and culture
09.3 Other recreational products and equipment, gardens and pets
09.4 Recreational and cultural services
09.5 Newspapers, books and stationery
09.6 Package holidays

10 Education
10.1 Pre-primary and primary education
10.2 Secondary education
10.3 Post-secondary non-tertiary education
10.4 Tertiary education
10.5 Education not definable by level

11 Restaurants and hotels
11.1 Catering services
11.2 Accommodation services

12 Miscellaneous goods and services
12.1 Personal care
12.2 Prostitution
12.3 Personal effects
12.4 Social protection
12.5 Insurance
12.6 Financial services
12.7 Other services

Annexure-XI

Compilation of CPI Numbers (IW)

1. Details of various series of CPI (IW)

S. No.	Base year	Coverage of Centres	Period in which FBE was conducted
1.	1944=100	24 (15 central series + 9 state series centres)	1943-46 (central series)
2.	1949=100	27 (15 central series + 12 state series centres)	-do-
3.	1960=100	50	1958-59
4.	1971=100*	60	1970-71
5.	1982=100	70 + 6 additional centres	1981-82
6.	2001=100	78	1999-2000

2. Compilation of CPI Numbers

Four requirements
1. Selection of Base Year
2. Item Weights - Working Class Family Income & Expenditure Surveys and derivation of weighting diagrams
3. Base Prices - Organisation of Price Collection work
4. Current Prices – Regular collection of Prices and their processing

3. All-India Group weights

Group	1960=100	1982=100	2001=100
IA – Food	60.9	57.0	46.20
IB – Pan, Supari, Tobacco & Intoxicants	4.8	3.15	2.27
II - Fuel & Light	5.8	6.28	6.43
III - Housing	6.3	8.67	15.27

IV - Clothing, Bedding & Footwear	8.5	8.54	6.57
V - Miscellaneous	13.7	16.36	23.26
Total	100.0	100.00	100.00

4. Treatment of items for which no Price Quotations are received

- In case a price return is not received in time from the field, despite all-out efforts, then the estimated prices are taken for the missing period.
- In case of non-availability of any item in the market / centre, prices of comparable substitutes are collected. In case the reported price relates to non-comparable item, then the prices are linked or in other words 'Splicing Method' is adopted.

5. PDS Items

- Statutory, Informal and Tea Garden Depot [TGD]
- Average price of items supplied through PDS is weighted average of price in fair price shops and that in open market

$$P = pf.\ a + pm\ (1-a)$$

Where :
P = Weighted Average Price
pf = Fair Price
pm = Open Market Price
a = Off-take Ratio

6. Calculation of Weighted Price of Rice (Example)

Base year requirement per Family	=	8.193 kg
Admissibility Scale	=	10 kg per card/Per family
Availability per Family	=	1.333kg (Total Quantity) / No. of Cards
Available Fair Price Ratio	=	16% (1.333*100) / 8.193
Open Market Ratio	=	84% (100 - 16)
Fair Price	=	6.00
Open market Price	=	10.95
Weighted Price	=	16x6.00+84x10.95 / 100 = 10.15

7. Seasonality

- Certain items are seasonal in nature and hence not available throughout the year.
- Weights of such items are distributed among other items in the same section/sub-group/group on pro-rata basis.

$$\frac{Wt}{Wt - Wm}\ X\ \text{Wi}$$

Where :
Wt = Total weight of section/sub-group/group
Wm = Weight of missing item
Wi = Weight of item to which weight of missing item is to be imputed.

8. Average of Prices (Example)

	M-1	M-2	M-3	Average
W-1	8.00	8.50	8.25	
	8.00	8.50	8.25	
W-2	8.00	8.50	8.25	
	8.00	8.50	8.25	
W-3	8.00	8.50	8.25	
	8.00	8.50	8.25	
W-4	8.50	9.00	8.50	
	8.50	9.00	8.50	
Average	8.13	8.63	8.31	8.35

9. Compilation of Index

- The index is compiled firstly at sub-group level, then at group level and general level for each centre. These centre indices combined with their centre weights give an All-India Index.

- Various methodological issues relating to compilation of indices are decided after consulting TAC on SPCL.

9.1 **Cereals & Products (Example)**

Item	Weight	B.P.	C.P.	P.R.	P.M.
Rice	27.56		11.90	12.03	101.0924 2786.1065
Wheat	26.61	7.18	7.55	105.1532	2798.1267
Wheat Atta	37.97	8.11	12.43	153.2676	5819.5708
Bread	4.43	7.00	8.50	121.4286	537.9287
Grinding charges	3.43	40.42	61.25	151.5339	519.7613
sub-group	100.00				12461.4940
index					124.6149
					125

9.2 **Food Group (Example)**

Sub-Group	Weight	Index	P.M.
Cereals & Products	19.01	124.6149	2368.9292
Pulses & Products	6.83	141.7956	968.4639
Oils & Fats	6.44	166.9778	1075.3370
Meat, Fish & Eggs	4.22	156.1929	659.1340
Milk & Products	26.08	127.1503	3316.0798
Cond. & Spices	5.46	126.6331	691.4167
Veg. & Fruits	14.54	107.0251	1556.1450
Other Food	17.42	115.5606	2013.0657
Food Group	100.00		12648.5713

Index
126.4857

126

9.3 General Index (Example)

Group	Weight	Index	P.M.
Food	43.75	126.4857	5533.7494
Pan, Supari etc.	2.12	119.2176	252.7413
Fuel & Light	5.39	149.5710	806.1877
Housing	20.72	122.9717	2547.9736
Clothing etc.	5.68	113.4386	644.3312
Miscellaneous	22.34	136.3478	3046.0099
General Index	100.00		12830.9931
or			128.3099
Centre Index			128

10. All India Index

- Each centre is assigned a weight for the All India Index.
- This weight is determined by taking product of average consumption expenditure and number of families represented by a centre as a ratio of sum of such products over all the centres.
- The All-India index is then worked out as a weighted average of the centre indices.

10.1 All India Index (Example)

Centre	Weight	Index	P.M.
Delhi	1.99	128.3099	255.3367
Mumbai	9.57	137.3762	1314.6902
Chennai	2.31	127.6658	294.9080
Kolkata	1.51	134.9360	203.7534
	---	-----	-----
	---	----	-----
General Index	100.00		13412.9633
			134.1296
			134

11. Release of Centre and All India Index

Centre indices and all-India Index are released regularly every succeeding month on last working day of the month and published regularly through

- Press Note,
- Monthly Index Letter,
- Indian Labour Journal

and disseminated through website of Labour Bureau i.e. http://www.labourbureau.gov.in

REFERENCES

1. Consumer Price Index Numbers in India, A Reference Book (Labour Bureau)

2. Working Class Family Income & Expenditure Survey, 1981-82
   General Report (Labour Bureau)

3. Consumer Price Index Numbers for Industrial Workers
   (Base:1982 = 100) – Annual Report 2004 (Labour Bureau)

4. Salient Features of Consumer Price Index Number Series for Industrial Workers (Base:1982 = 100) (Labour Bureau)

5. Consumer Price Index Numbers for Agricultural Labourers in India – A Compendium (Labour Bureau)

6. Consumer Price Index Numbers for Agricultural and Rural Labourers (Base:1986 – 87 = 100) for the Agricultural Year 2003-04
   (Labour Bureau)

7. Consumer Price Index Numbers for Agricultural and Rural Labourers on Base: July, 1986 to June, 1987=100 – A Note on the Scope and Methodology, Paper published in Indian Labour Journal

8. Report on Family Living Survey relating to Urban Non-Manual Employees, 1982-83 (Central Statistical Organisation)

9. A note on Revised Series of Consumer Price Index Numbers for Urban Non– Manual Employees on Base 1984-85=100 of the Central Statistical Organisation published in Monthly Abstract of Statistics– April,1989

10. Consumer Price Index Manual: Theory and Practice, 2004
    International Labour Organization