Department of Statistical Analysis and Computer Services
Statistical Analysis Division

Harmonized Index of Consumer Prices in India

1. Introduction

1.1 In India, the measure of inflation based on Wholesale Price Index (WPI) is widely used for policy purposes and other macro-analysis because of non-availability of an appropriate measure of inflation which reflects Consumer Price Index (CPI) for the overall population of the country. Internationally, however, CPI, which reflects the cost of living conditions is considered a suitable measure of inflation and is used as main yardstick for monitoring of price stability in retail market. In India, 4 distinct CPI measures for different reference populations are compiled on a monthly basis for major centers along with All-India indices. These are Consumer Price Index for Industrial Workers (CPI-IW: base year 1982), Consumer Price Index for Urban Non-Manual Employees (CPI-UNME: base year 1984-85) Consumer Price Index for Agricultural Labourers and Consumer Price Index for Rural Labourers (CPI-AL and CPI-RL, respectively: base year 1986-87). Though these CPI measures have some common features, they differ not only with regard to reference population, but also in terms of basket of goods and services and their weights, geographical areas, base period, etc., as these indices have been developed to serve different objectives. The weighting patterns based on consumption expenditures of population groups covered under 4 CPI series are not uniform (Annex 1).

1.2 Ideally, a measure of inflation should cover the entire gamut of goods and services, being purchased by a consumer in the domestic market and should represent all spectrum of population in a country. Accordingly, there has been a long felt need to develop a measure of CPI, which can meet these objectives. The National Statistical Commission [2001] recommended in this regard that *"The current CPIs do not provide changes in the prices for the entire rural and urban population since they are designed to measure the*

changes in the prices of goods and services consumed by specific segments
of the population and hence there is a need to compile the CPI separately for
the entire rural and urban population."

1.3 Ideally a CPI should provide a common measure of consumer price inflation
for the country as a whole, which can facilitate international comparisons of
consumer price inflation. At all-India level, such a measure that reflects the
purchasing power of domestic currency in domestic market can be useful to
the RBI for monetary policy purposes as well. A CPI at State level covering
the entire population can also be useful in assessing the price situation and
price movements at the regional level. It can also be used for generating
deflators for State-wise macroeconomic aggregates in real terms. This can
also facilitate both spatial and inter-temporal comparison of the State level
aggregates.

1.4 An ideal framework for construction of an all-India CPI should encompass an
appropriate sampling frame, a product dimension and an outlet dimension to
cater to the different segments of the entire population covering different
geographical areas, which would enable drawing up appropriate basket of
commodities and representative weighting diagram based on shares of
consumer expenditure, collection of price data for the commodities on a
regular basis. However, in the absence of such a set up at present, an
attempt has been made in this paper to construct a harmonized index of
Consumer Prices (HICP) based on existing 4 CPI series. We understand that
such a HICP may not be an appropriate surrogate of the overall population
groups, but possibly could be considered as next alternative for the same.
Besides, the HICP will reveal behaviour of the different CPIs aggregating and
thus could be useful for macro-analysis and policy purposes. The plan of the
paper is as follows: In Section 2, an overview of the features of the existing
CPIs and earlier attempts to construct CPIs for rural and urban population is
presented. Section 3 briefly covers a practice for construction of harmonized
Index of CP in the European Union. In Section 4, a suggested approach for
construction of a HICP, by updating the methodology previously followed in

the Indian context, given the availability of data and the underlying assumptions / limitations are discussed. Various Annexure, etc, at the end provide related information on the CPIs and HICP in respect of food and non-food group and all commodities together and their comparative performance.

2.   Existing CPIs and earlier work on construction of all-India CPI

2.1   The features of the 4 CPIs in respect of the coverage of goods and services, geographical location, population, base-year, Index formula, etc., are summarized in Annex-1. The baskets of goods and services for the CPI-IW and CPI-UNME include 'Housing', whereas the other two CPIs do not include the same. Moreover, the weight of the 'Food' group is higher in CPI-RL and CPI-AL compared to the other two indices. The trends in inflation based on these 4 CPI series December 2002 onwards reveal a greater degree of convergence as compared to the earlier period (Annex-2). Though CPI-IW and CPI-UNME still have some differences, CPI-AL and CPI-RL, largely move in a narrow band. This in turn provides encouragement for attempting to develop HICP, which could be viewed as an aggregative reflection of the existing series It needs to be mentioned that even in the European Union (EU) prior to embarking upon the development of the present HICPs, a "European Average" CPI used to be calculated by taking a weighted average of the unadjusted national CPIs.

2.2   Though, the need for an all-India rural CPI (CPI(R)) and an all-India urban CPI (CPI(U)) measure was felt way back, the first explanatory work took place in the eighties. Minhas, [1987 and 1988] attempted construction of CPI(R) and CPI(U) making use of the commodity sub-group level indices of the above 4 CPI series, which were combined based on the weights derived from National Sample Survey Organisation (NSSO) survey data on consumer expenditure on the commodity sub-groups by the respective segments of the rural and urban population. In Minhas [1988], the basic

building blocks for construction of CPI(U) are commodity sub-group level indices of the CPI-IW and CPI-UNME for different centers. The sub-groups in the two series are made uniform by combining some of the sub-groups under CPI-UNME. For each sub-group, the indices from the two series are combined as simple average. These are further averaged over a 12-month period corresponding to an NSSO survey round to obtain annual indices for each sub-group and each center. The State level indices at sub group level are averages of the annual indices of all centers within each State. For each State, the weighting diagram at the sub-group level is derived from the distribution of consumption expenditure of the urban population as obtained from NSSO survey data for the respective years. Thus the State level CPI(U) was computed as weighted average from the sub-group indices using this weighting diagram. The all-India index for CPI(U) at sub-group level was obtained as weighted average using the State-wise shares of consumption expenditure of the urban population. For CPI(U) at aggregate level, weights based on all-India expenditure on the sub-groups were used. For computing CPI(R), Minhas [1987] used a somewhat similar approach. The basic price data was taken from monthly rural price data collected by NSSO.

3. **Practice for construction of Harmonized Index of Consumer Prices in the European Union**

3.1 In the European Union, HICP are compiled for the European Union from 1997 onwards on a monthly basis. Over twenty years' ago, the need for harmonization of the country specific CPIs in the European Union was identified by Eurostat. At that time, a "European average" CPI was calculated as a weighted average of the unadjusted national indices. The country weights are derived from national accounts data for 'household final monetary consumption expenditure' converted into purchasing power standards. The HICP serves as an inflation index for the whole of EU and

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the main uses include international comparison of consumer price inflation and assessment of compliance of the convergence criterion for EMU on price stability. European Central Bank has adopted HICP as a benchmark for price stability in the Euro-zone.

3.2 The process of construction of the HICPs in EU involved adoption and implementation of a series of harmonization measures relating to scope, coverage, classification, methodology, index formula, weighting diagram, reference period, etc., for bringing about uniformity and comparability across the individual countries, while recognizing the inherent differences in the patterns of consumption expenditure, CPI methodologies, etc., among them. The approach of harmonization has been to adopt the EU Member States' existing data sources and make use of the methodologies of their national CPIs, to the extent possible. HICP Framework Council Regulation is binding for all EU Member States and laid down a step-wise approach to harmonization. (*Ref: Harmonized Indices of Consumer Prices(HICPs), A short guide for users, March 2004, Eurostat, Luxembourg: Office for Official Publications of the European Communities, 2004 ISBN 92-894-7081-X ISSN 1725-0048 © European Communities, 2004*)

3.3 HICPs follow the 4-digit international classification of consumption expenditure known as Classification of Individual Consumption by Purpose (COICOP), suitably adapted. The commodity groups in COICOP/HICP in HICPs are shown as under:

Table 1: Commodity Groups of HICP of EU.

S.No.	Commodity Group
1.	Food and Non-Alcoholic Beverages
2.	Alcoholic Beverages and Tobacco
3.	Clothing and Footwear
4.	Housing, Water, Electricity, Gas and other Fuels
5.	Furnishings, Household equipment and Routine maintenance of the house
6.	Health
7.	Transport
8.	Communications
9.	Recreations and Culture
10.	Education
11.	Hotels, Cafes and Restaurants
12	Misc. goods and services

The weights assigned to each Commodity-Group vary from country to country depending on the relative importance of consumers' expenditure on each good or service in each Member State. <u>There is no "uniform basket" applying to all Member States.</u>

3.4 The indices of the country-specific CPIs may have different reference periods (Weight Reference Period, Index Reference Period, etc.) arising from differences in base year, basis for weighting diagrams, use of annual chain-base index or fixed-base index, etc. In the harmonization process, uniformity in the reference periods is achieved through appropriate adjustment of the indices. The HICPs have common base period (1996=100). The weights are <u>price updated</u>, i.e., weights are adjusted according to the movement in the prices. The price-updated weights can be calculated by multiplying the original weights for period t (t being the weight reference period of each Member Country) by elementary indices measuring the price changes between periods t and 0 (0 being common base year 1996) and rescaling to sum to unity. Price updating is simply a scaling exercise, which in itself has no effect on the measured rate of inflation. However, it allows and provides for the construction of indices for groups of countries or the EU as a whole. *(Ref: Ch-5 p 177-178, Compendium of HICP- European Union [2001]: "Cat. No. KS-AO-01-005-EN-I", Office for Official Publications of the European Communities, Luxembourg)*

3.5 HICP for each member country is computed as a 'Laspeyres-type' index based on prescribed methodology for computation. The index is computed as an annual chain-index allowing for country weights changing each year. Weights assigned to each sub-index vary from country to country, depending on the relative importance of consumers' expenditure on each sub-category in each country. The HICP for EU is a weighted average of HICPs from EU Member States. The weights of each country are updated every year and they reflect expenditure on final private domestic

consumption. The HICPs are compiled at the aggregate as well as at Subgroup levels, which includes the main commodity groups.

4.   Construction of a HICP for India using existing CPIs:

4.1   Ideally, an elaborate framework, as prescribed in Para 1.4, is required for construction of a harmonized index of Consumer Prices. In contrast to the situation in the EU, the reference groups for the existing CPIs in India do not cover the entire population; in fact certain important segments are left out.

4.2   Given this background, an attempt has been made to harmonize the existing four CPIs so as to arrive at a common index in the Indian context. For this purpose, the possibility of combining the existing CPI series as their weighted average, with weights based on share of Total Aggregate Consumption Expenditure(TACE) of respective population groups in their total consumption expenditure was examined. The following approach is considered for this purpose.

Harmonizing Process:

i.   The standard weighting pattern in any CPI is based on proportionate consumption expenditure at different levels, i.e., item, sub-group, groups and centres/states to reach the ultimate level. It is, therefore, required that weights arrived at for harmonizing existing series of CPIs should be based on the Total Aggregate Consumption Expenditure(TACE) representing the respective target population group.

ii.   For computation of HICP, existing three CPI series, viz., CPI-IW, CPI-UNME and CPI-RL are considered, as CPI-RL covers the agricultural labourers, which implicitly form in part of CPI-RL.

iii.   *Common Base Year***:** 1986-87 has been taken as base year for HICP. Thus all 3 CPI series, viz., CPI-IW, CPI-UNME and CPI-RL are converted into common base year (1986-87 =100) by applying appropriate linking factor .

iv.   The consumer expenditure data for the year 1982, collected by the NSSO, are used for derivation of weighting diagrams The total consumption

expenditure, which is the product of the average expenditure per family/household and the estimated number of families/households at the constituent levels, i.e., centres/states, has been used to work out the weights. For the purpose of combining the three CPIs, the relative share of each population's group (i.e., CPI-IW, CPI-UNME and CPI-R) in consumption expenditure in their total has been considered to represent as their weights. Their weights for the CPI-IW, CPI-UNME and CPI-RL works out to be 15.62, 43.10 and 41.28. respectively. Using these weights of three CPIs and their price indices (shifted to the common base of 2001), HICP is generated which is presented in Annex-4. Similar to the HICP for all commodities, HICP for food commodities and non-food commodities, for this purpose has also been compiled separately. Initially, weights for food-items and non-food items have been obtained for these three CPIs, from their respective weighting diagram. Based on weights of food (non-food) items in the three CPI indices, the consumptions expenditure of IW (or UNME or RL) has been estimated, as a product of Aggregate Consumption Expenditure of IW (or UNME or RL) and the weights of food (non-food) items in the CPI. Subsequently the shares of IW, UNME and RL in total ACE on food items and also in non-food items have been estimated. Considering their shares as weights for the respective IW, UNME and RL, the harmonized index for food items and non-food items have been worked out. The harmonized food and non-food indices have been aggregated to arrive at Harmonized Index of Consumer Prices based on their weights in total aggregate consumption expenditure on all items. (Annex-3 and 4).

Table – 2: Aggregate Consumption Expenditure and weights of Food and Non-food items of 3 CPIs.

Population Group	Total Aggregate Consumption Expenditure(TACE) in Rs.	(weights in per cent)	
		Food items	Non-food items
Industrial Workers(IW),	5913802345	57.00	43.00
Urban Non-manual Employees (UNME)	16310695880	45.67	54.33
Rural Labourers (RL)	15620635260	66.77	33.23

(*Source: NSSO Report 1982, CSO*)

v. It is observed that there is a persistent divergence between rural-urban consumption patterns. As a behavioral pattern, the proportion of consumption expenditure in food items decreases when income rises. The 60th round survey results of NSS on consumer expenditure, covering the period January -June 2004, wherein consumer data are segmented into rural and urban areas, showed that urban households incur almost twice the expenditure (total) incurred by rural households. As per this survey, an average urban household had a Monthly Per Capita Consumption Expenditure (MPCE) of Rs.1,060, which was 88 per cent more than the MPCE of an average rural household (Rs. 565). The result of this survey also shows that the expenditure on food items by rural and urban populations are 58 and 46 per cent, respectively, in their respective consumption expenditure, which appears to be compatible with the results given in Table-2 above.

vi. The comparative indices and inflation of HICP constructed by this method and CPI- IW, CPI-UNME and CPI-RL are shown in Annex-5. From the graph(Annex-6), it may be observed that the movements of HICP and inflation based on HICP constructed by this method are more close to that of CPI-IW and CPI-UNME than CPI-RL.

4.3 The comparative inflation based on HICP and WPI –all commodities and Food Items are plotted in Annex-7. It is observed that inflation based on both series-all commodities are moving in different direction, especially during the time periods, July 2000 to July 2001, October 2001 to July 2002. Subsequently, the movement was somewhat similar. The difference between the WPI and HICP measures of inflation arises from a significant variation in the composition and coverage of items and also the weighting pattern. The WPI gives more weight to manufacturing products, while services do not come under the ambit of WPI. The coverage of non-agricultural products is much better in the WPI as against the HICP. The

HICP, on the other hand, gives higher weight to food articles(57 per cent) and includes services, such as education, medical care and recreation, whereas food articles (in the primary group) and food products (in the manufactured products group) in the WPI series together have a weight of only 27 per cent. The HICP series is thus more sensitive to the food prices. From the second graph it is observed that the inflation based on HICP and WPI of Food items are moving together and are in the same direction.

4.4 The above approach though provides HICP, encompasses information of the existing CPIs, has certain limitations, as mentioned under:

(i) The target population groups of the 3 CPIs together do not cover the entire population of the country.

(ii) In the absence of reference population group weights, alternative approach has been adopted for obtaining weighted averages.

(iii) CPI-IW may cover parts of urban as well as rural population. As necessary data are not available it is difficult to find out the population proportion. CPI-UNME and CPI-RL is considered to represent urban and rural population respectively. Hence, averaging may have an element of bias in the estimates.

(iv) The three CPI series have different base periods and also the expenditure weights are derived from different rounds of consumer expenditure survey by the NSSO. Certain simplification is involved in converting them to a common base, using ratio of average indices as linking factor.

(v) The commodity basket for CPI-IW and CPI-UNME includes Housing, while the CPI-RL do not cover Housing. As such, the weight of this commodity gets implicitly allocated for the corresponding population groups.

Notwithstanding such limitations, it may be worthwhile to examine the utility of the above HICP, in the absence of better alternatives.

5. Concluding Remarks:

This paper is an exploration for constructing a Harmonized Index of Consumer Prices in the light of past empirical exercise in the Indian context and the present state of availability of data. Although the need for compilation of an all-India Harmonized Index of Consumer Prices has been emphasized in the past, such series are not still compiled. The elaborate framework of compilation of Harmonized Index of Consumer Prices in the European Union and the detailed documentation available on the same as well as the earlier work done in the Indian context provide the required basis for undertaking this task, in a phased manner. The exercise carried out in this paper seeks to provide a pointer in this direction. Broadly, the results of HICP are a reflection of the movements in the three CPIs at the aggregate level. HICP so constructed perhaps could be useful for policy and macro-analysis as compared to the individual series – which may not always provide similar signal. Similarly, HICP for food items and HICP for non-food items could be useful. However, in view of the limitations as outlined above, these results need to be interpreted very cautiously.

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Annex - 1

Features of 4 CPIs in India

		CPI-IW	CPI-UNME	CPI-AL	CPI-RL
1	**Base year**	upto Dec 2005 base year=1982 (after Jan 2006 new series with base year = 2001)	1984-85	1986-87	1986-87
2	**Population group**	Industrial workers relating to factories, mines, plantations, railways, public motor transport undertakings, electricity generation and distribution establishments, and ports and docks	Consumers having Non-manual occupations in the non-agricultural sector	Households of Agricultural labourers	Households of Rural labourers
3	**Centres**	76 Centres (base year 1982) 78 Centres (base year 2001)	59 Centres (34 centres are common with CPI-IW)	20 States (600 villages)	20 States (600 villages)
4	**Coverage: Goods & Services with Weights**				
	Food, Beverages and Tobacco	60.15 (base year =1982) 48.39 (base year =2001)	47.13	72.94	70.47
	Fuel & Light	6.28 (base year =1982) 6.42 (base year =2001)	5.48	8.35	7.90
	Housing	8.67 (base year =1982) 15.29 (base year =2001)	16.41	–	–
	Clothing & Footwear	8.54 (base year =1982) 6.58 (base year =2001)	7.03	6.98	9.76
	Miscellaneous	16.36 (base year =1982) 23.32 (base year =2001)	23.95	11.73	11.87
	Total	100.00	100.00	100.00	100.00
5	**Basis for Weighting Diagram**	1. Working Class Family Income and Expenditure Survey (1981- 82) for old series (1982) 2. Consumption pattern of the working class population at all the 78 selected centres across the country during 1999-2000 for new series(2001)	Family Living Survey (1982- 83 and 1999-2000) – NSSO	38th Round (1983) – NSSO	
6	**Methodology**	Laspeyres Index Formula			
7	**Source**	Labour Bureau, Govt. of India	CSO, Govt. of India	Labour Bureau, Govt. of India	Labour Bureau, Govt. of India

**Movement of 4 existing CPI-Inflation Rates
With their corresponding base year**

Annex-3
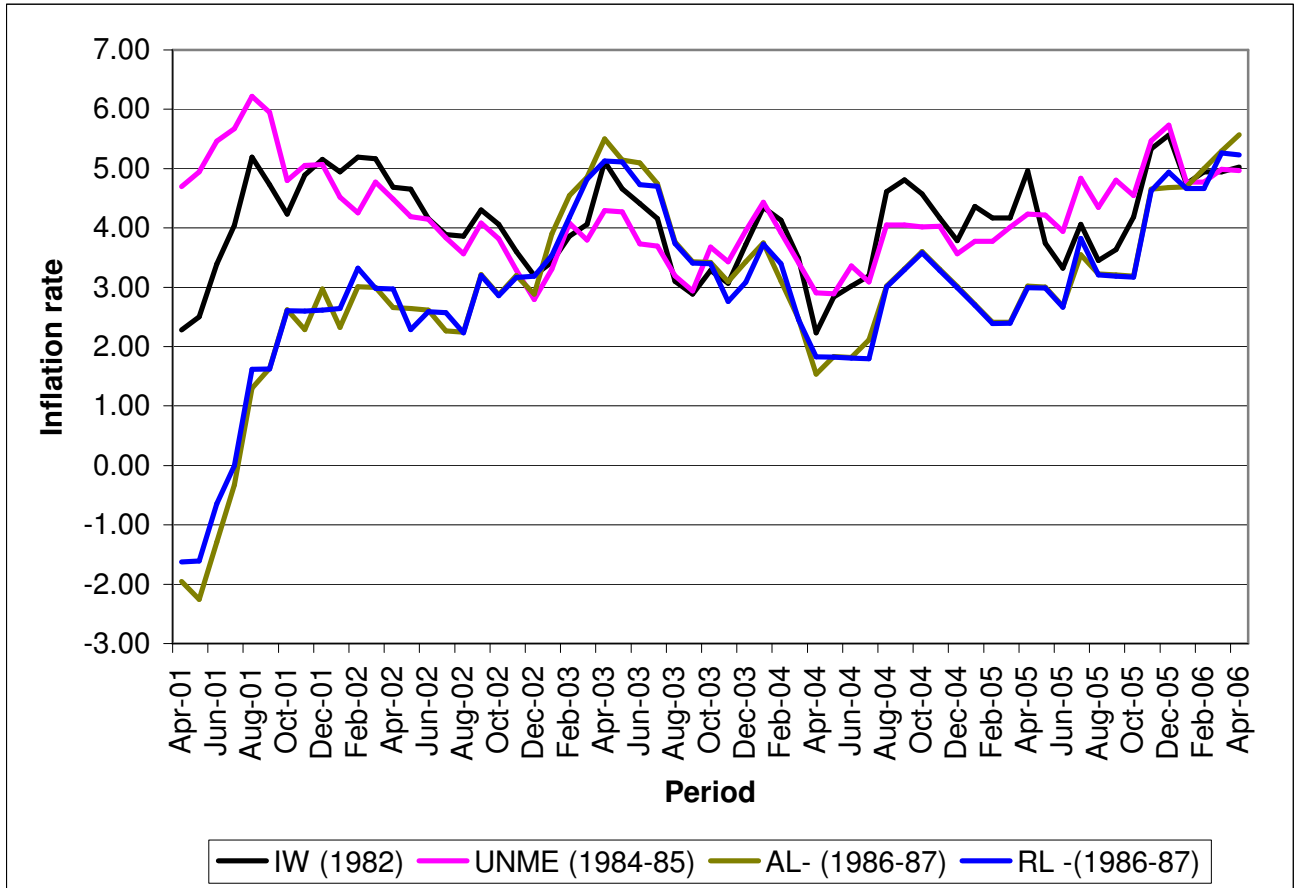
	Food Group			Non-Food Group		
Food & Non-Food Index for 3 Consumer Prices at 2001 base						
	CPI-IW	CPI-UNME	CPI-RL	CPI-IW	CPI-UNME	CPI-RL
Wt(% in TACE)	**8.91**	**19.68**	**27.56**	**6.72**	**23.42**	**13.72**
Jul-01	102.1	100.0	100.0	104.5	100.0	100.0
Aug-01	103.1	100.5	101.0	104.7	100.4	100.3
Sep-01	102.3	99.5	100.6	105.0	100.6	100.6
Oct-01	103.3	100.0	101.3	105.5	100.8	100.8
Nov-01	104.4	101.0	101.6	105.8	101.1	101.1
Dec-01	103.1	99.5	100.7	106.4	101.6	101.6
Jan-02	101.3	98.1	98.8	107.8	102.6	101.8
Feb-02	100.5	97.8	98.8	108.2	102.8	102.2
Mar-02	100.9	98.1	98.8	109.0	103.4	102.2
Apr-02	101.1	98.6	99.2	109.3	103.5	102.7
May-02	102.0	99.6	99.5	109.6	103.7	103.2
Jun-02	103.2	101.0	100.8	110.1	104.3	103.8
Jul-02	104.5	101.8	101.7	110.8	105.5	104.1
Aug-02	105.1	102.0	102.9	111.0	105.8	104.3
Sep-02	105.5	102.0	103.5	111.3	106.3	104.7
Oct-02	105.9	101.8	103.8	111.7	106.6	105.1
Nov-02	106.1	101.8	104.5	112.0	106.7	105.0
Dec-02	104.5	100.1	103.6	112.4	106.9	105.3
Jan-03	103.5	99.1	102.7	113.2	108.3	105.4
Feb-03	103.7	99.6	103.4	113.5	108.5	105.7
Mar-03	104.5	100.6	104.3	113.9	108.9	105.9
Apr-03	106.4	101.8	104.9	114.4	109.4	106.1
May-03	106.9	102.3	105.6	114.4	109.3	106.5
Jun-03	107.7	103.6	106.6	114.5	109.4	106.6
Jul-03	108.8	104.8	107.5	115.2	110.3	106.8
Aug-03	107.8	103.8	107.1	115.3	110.5	107.4
Sep-03	107.6	103.6	107.1	115.5	111.0	107.6
Oct-03	109.0	104.8	107.5	115.5	111.1	107.9
Nov-03	109.2	104.3	107.5	115.9	111.3	108.1
Dec-03	108.2	103.6	106.9	116.6	111.5	108.3
Jan-04	108.3	103.9	106.9	117.3	112.6	108.7
Feb-04	108.1	103.9	107.0	117.8	112.7	108.8
Mar-04	107.9	103.6	106.4	118.1	112.8	109.2
Apr-04	107.9	103.9	106.4	118.3	113.0	109.2
May-04	108.9	105.1	107.0	118.7	113.2	109.7
Jun-04	110.0	106.3	108.2	118.9	113.4	110.0
Jul-04	110.2	106.6	108.8	121.3	115.0	110.2

Aug-04	111.4	107.8	110.3	121.6	115.5	110.4
Sep-04	111.7	107.6	111.0	122.1	115.8	110.5
Oct-04	112.7	108.3	111.6	122.2	116.0	111.2
Nov-04	112.1	107.3	111.3	122.5	116.4	111.7
Dec-04	110.3	105.9	109.8	123.1	116.7	112.2
Jan-05	110.1	105.9	109.5	125.7	118.8	112.8
Feb-05	109.4	105.6	108.9	126.1	119.0	113.3
Mar-05	109.7	105.9	108.2	125.9	119.1	113.5
Apr-05	110.7	106.9	108.9	126.1	119.3	113.9
May-05	111.1	107.4	109.5	124.7	119.5	114.4
Jun-05	111.7	108.6	110.4	124.8	119.7	114.3
Jul-05	114.4	111.1	112.6	125.5	121.1	114.8
Aug-05	114.9	111.3	113.2	125.9	121.4	115.0
Sep-05	115.5	111.6	113.9	126.2	121.9	115.3
Oct-05	117.2	112.6	114.8	126.5	122.3	115.5
Nov-05	119.2	113.8	116.4	126.7	122.6	116.3
Dec-05	117.4	112.3	115.5	127.5	122.9	116.9
Jan-06	115.7	111.4	114.3	129.4	124.0	117.4
Feb-06	115.0	110.9	114.2	129.9	124.4	118.0
Mar-06	115.1	111.4	114.5	130.0	124.6	118.2
Apr-06	117.2	112.7	115.7	130.3	124.8	118.6

Annex – 4:

Food, Non-food and All Commodities – HICP at 2001 base

	HICP		HICP-All Commodities	
	Food Group	**Non Food Group**	**Index**	**Inflation Rate**
Wt(%)	**56.15**	**43.85**	**100.00**	
Jul-01	100.3	100.7	100.5	3.3
Aug-01	101.1	101.1	101.1	4.1
Sep-01	100.5	101.3	100.8	4.3
Oct-01	101.1	101.5	101.3	3.8
Nov-01	101.8	101.8	101.8	4.0
Dec-01	100.7	102.3	101.4	4.3
Jan-02	99.0	103.2	100.8	3.8
Feb-02	98.7	103.4	100.8	4.0
Mar-02	98.9	103.9	101.1	3.9
Apr-02	99.3	104.1	101.4	3.8
May-02	99.9	104.4	101.9	3.6
Jun-02	101.3	105.0	102.9	3.5
Jul-02	102.2	105.9	103.8	3.3
Aug-02	102.9	106.1	104.3	3.2
Sep-02	103.3	106.5	104.7	3.8
Oct-02	103.5	106.9	105.0	3.6
Nov-02	103.8	107.0	105.2	3.3
Dec-02	102.5	107.2	104.6	3.1
Jan-03	101.6	108.2	104.5	3.6
Feb-03	102.1	108.4	104.9	4.0
Mar-03	103.0	108.7	105.5	4.4
Apr-03	104.1	109.1	106.3	4.8
May-03	104.6	109.2	106.6	4.6
Jun-03	105.7	109.3	107.3	4.2
Jul-03	106.8	110.0	108.2	4.2
Aug-03	106.1	110.2	107.9	3.4
Sep-03	106.0	110.6	108.0	3.1
Oct-03	106.8	110.8	108.5	3.4
Nov-03	106.7	111.0	108.6	3.2
Dec-03	105.9	111.3	108.3	3.6
Jan-04	106.1	112.1	108.7	4.1

Feb-04	106.1	112.3	108.8	3.8
Mar-04	105.7	112.5	108.7	3.0
Apr-04	105.8	112.6	108.8	2.3
May-04	106.6	112.9	109.4	2.6
Jun-04	107.8	113.2	110.2	2.7
Jul-04	108.2	114.5	111.0	2.6
Aug-04	109.6	114.8	111.9	3.7
Sep-04	109.9	115.1	112.2	3.9
Oct-04	110.6	115.5	112.7	3.9
Nov-04	110.0	115.9	112.6	3.7
Dec-04	108.5	116.3	111.9	3.3
Jan-05	108.3	118.0	112.5	3.5
Feb-05	107.8	118.3	112.4	3.3
Mar-05	107.6	118.4	112.4	3.4
Apr-05	108.5	118.6	112.9	3.8
May-05	109.0	118.7	113.3	3.5
Jun-05	110.0	118.8	113.9	3.3
Jul-05	112.4	119.8	115.6	4.2
Aug-05	112.8	120.1	116.0	3.7
Sep-05	113.3	120.5	116.5	3.8
Oct-05	114.4	120.8	117.2	4.0
Nov-05	115.9	121.3	118.3	5.0
Dec-05	114.7	121.7	117.8	5.3
Jan-06	113.5	122.8	117.6	4.5
Feb-06	113.1	123.2	117.6	4.6
Mar-06	113.5	123.4	117.9	4.9
Apr-06	114.9	123.7	118.7	5.1

Annex-5:

Comparative Indices and Inflation at 2001 base

Period	Index(Base Year 2001)				Inflation Rate			
	CPI-IW	CPI-UNME	CPI-RL	HICP	CPI-IW	CPI-UNME	CPI-RL	HICP
Jul-01	100.0	100.0	100.0	100.5	4.0	5.7	0.0	3.3
Aug-01	100.6	100.5	101.0	101.1	5.2	6.2	1.6	4.1
Sep-01	100.4	100.3	100.6	100.8	4.7	5.9	1.6	4.3
Oct-01	101.1	100.5	101.3	101.3	4.2	4.8	2.6	3.8
Nov-01	101.9	101.0	101.6	101.8	4.9	5.1	2.6	4.0
Dec-01	101.3	100.8	101.0	101.4	5.2	5.1	2.6	4.3
Jan-02	100.9	100.5	100.0	100.8	4.9	4.5	2.6	3.8
Feb-02	100.6	100.3	100.0	100.8	5.2	4.3	3.3	4.0
Mar-02	101.1	101.0	100.0	101.1	5.2	4.8	3.0	3.9
Apr-02	101.3	101.3	100.3	101.4	4.7	4.5	3.0	3.8
May-02	101.9	101.8	100.6	101.9	4.7	4.2	2.3	3.6
Jun-02	102.8	102.8	101.9	102.9	4.2	4.1	2.6	3.5
Jul-02	103.9	103.8	102.6	103.8	3.9	3.8	2.6	3.3
Aug-02	104.5	104.1	103.2	104.3	3.9	3.6	2.2	3.2
Sep-02	104.8	104.3	103.9	104.7	4.3	4.1	3.2	3.8
Oct-02	105.2	104.3	104.2	105.0	4.1	3.8	2.9	3.6
Nov-02	105.6	104.3	104.8	105.2	3.6	3.3	3.2	3.3
Dec-02	104.5	103.6	104.2	104.6	3.2	2.8	3.2	3.1
Jan-03	104.3	103.8	103.5	104.5	3.4	3.3	3.5	3.6
Feb-03	104.5	104.3	104.2	104.9	3.9	4.1	4.2	4.0
Mar-03	105.2	104.9	104.8	105.5	4.1	3.8	4.8	4.4
Apr-03	106.5	105.6	105.5	106.3	5.1	4.3	5.1	4.8
May-03	106.7	106.1	105.8	106.6	4.7	4.3	5.1	4.6
Jun-03	107.3	106.6	106.8	107.3	4.4	3.7	4.7	4.2
Jul-03	108.2	107.7	107.4	108.2	4.2	3.7	4.7	4.2
Aug-03	107.8	107.4	107.1	107.9	3.1	3.2	3.7	3.4
Sep-03	107.8	107.4	107.4	108.0	2.9	2.9	3.4	3.1
Oct-03	108.6	108.2	107.7	108.5	3.3	3.7	3.4	3.4
Nov-03	108.9	107.9	107.7	108.6	3.1	3.4	2.8	3.2
Dec-03	108.4	107.7	107.4	108.3	3.7	4.0	3.1	3.6
Jan-04	108.9	108.4	107.4	108.7	4.3	4.4	3.7	4.1
Feb-04	108.9	108.4	107.7	108.8	4.1	3.9	3.4	3.8
Mar-04	108.9	108.4	107.4	108.7	3.5	3.4	2.5	3.0
Apr-04	108.9	108.7	107.4	108.8	2.2	2.9	1.8	2.3
May-04	109.7	109.2	107.7	109.4	2.8	2.9	1.8	2.6
Jun-04	110.6	110.2	108.7	110.2	3.0	3.4	1.8	2.7
Jul-04	111.7	111.0	109.3	111.0	3.2	3.1	1.8	2.6

Aug-04	112.7	111.8	110.3	111.9	4.6	4.0	3.0	3.7
Sep-04	113.0	111.8	110.9	112.2	4.8	4.0	3.3	3.9
Oct-04	113.6	112.5	111.6	112.7	4.6	4.0	3.6	3.9
Nov-04	113.4	112.3	111.3	112.6	4.2	4.0	3.3	3.7
Dec-04	112.5	111.5	110.6	111.9	3.8	3.6	3.0	3.3
Jan-05	113.6	112.5	110.3	112.5	4.4	3.8	2.7	3.5
Feb-05	113.4	112.5	110.3	112.4	4.2	3.8	2.4	3.3
Mar-05	113.4	112.8	110.0	112.4	4.2	4.0	2.4	3.4
Apr-05	114.3	113.3	110.6	112.9	5.0	4.2	3.0	3.8
May-05	113.8	113.8	110.9	113.3	3.7	4.2	3.0	3.5
Jun-05	114.3	114.6	111.6	113.9	3.3	3.9	2.7	3.3
Jul-05	116.2	116.4	113.5	115.6	4.1	4.8	3.8	4.2
Aug-05	116.6	116.6	113.8	116.0	3.4	4.3	3.2	3.7
Sep-05	117.1	117.1	114.5	116.5	3.6	4.8	3.2	3.8
Oct-05	118.4	117.6	115.1	117.2	4.2	4.5	3.2	4.0
Nov-05	119.4	118.4	116.4	118.3	5.3	5.5	4.6	5.0
Dec-05	118.8	117.9	116.1	117.8	5.6	5.7	4.9	5.3
Jan-06	119.0	117.9	115.4	117.6	4.7	4.8	4.7	4.5
Feb-06	119.0	117.9	115.4	117.6	4.9	4.8	4.7	4.6
Mar-06	119.0	118.4	115.8	117.9	4.9	5.0	5.3	4.9
Apr-06	120.0	118.9	116.4	118.7	5.0	5.0	5.2	5.1

Annex-6:

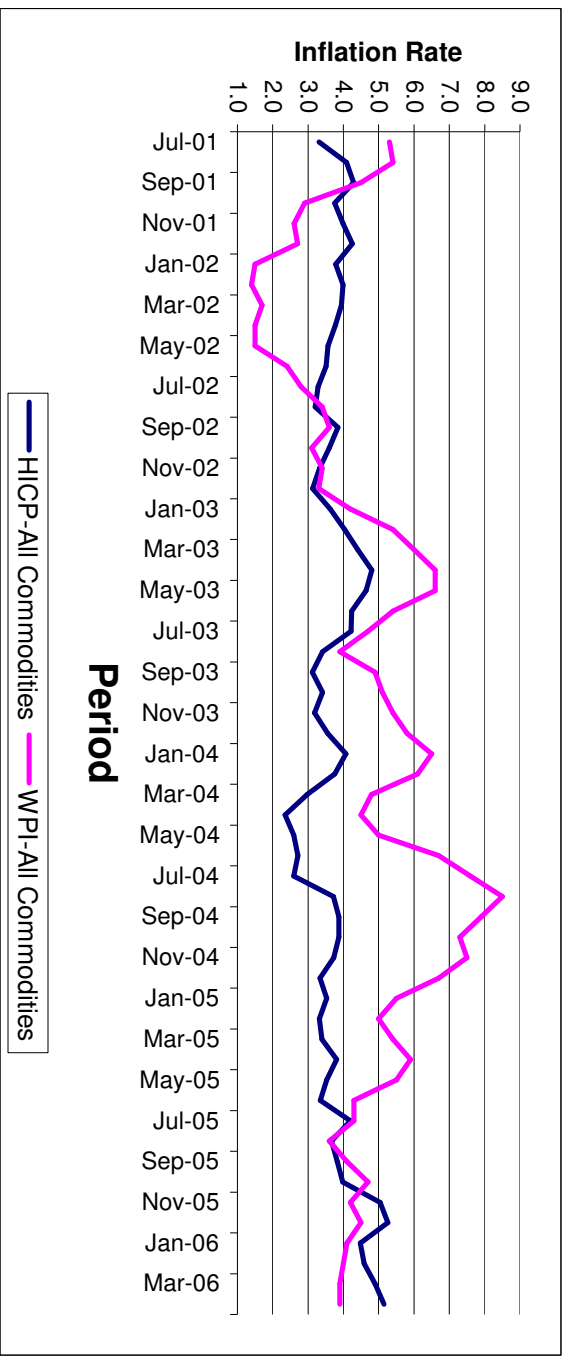## Comparative Consumer Price Indices at 2001 base
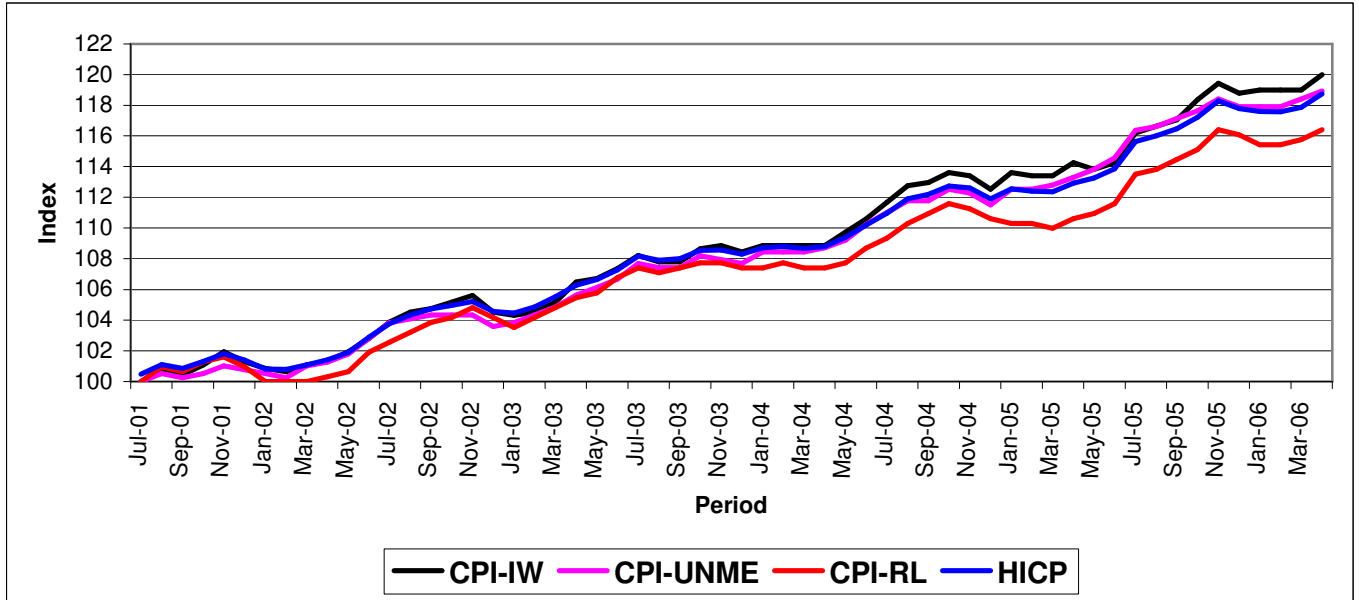
Comparative Inflation based on 3 CPI series and HICP
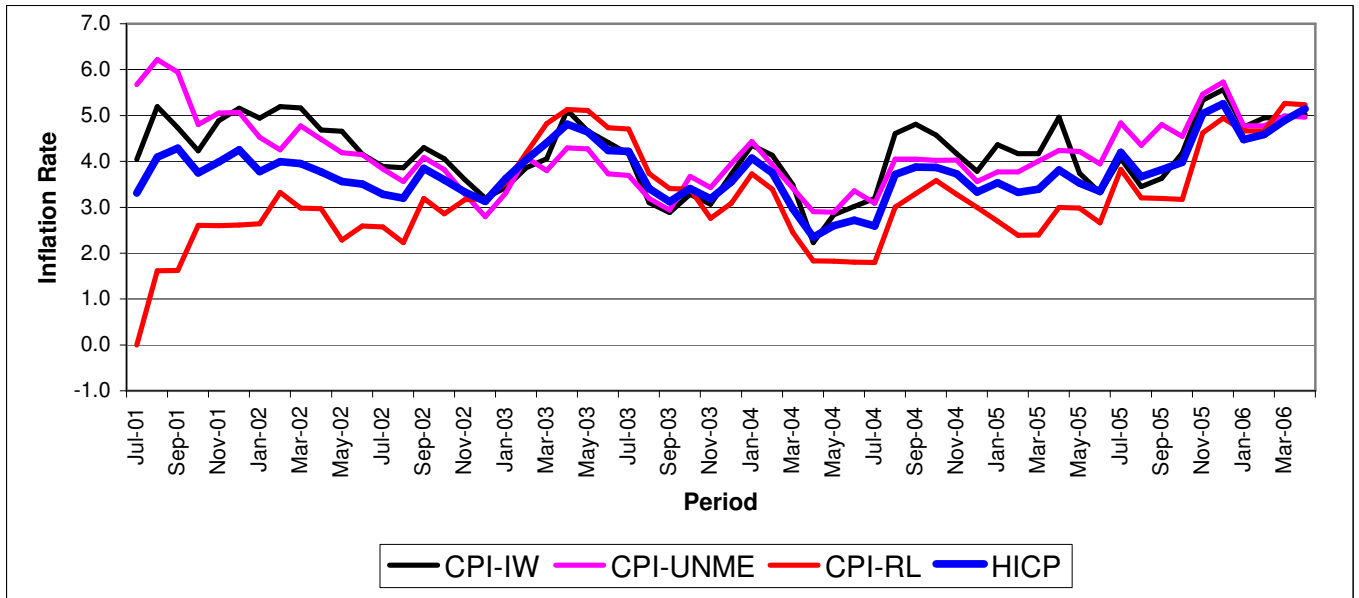
Annex-7:

Comparative Inflation based on WPI and HICP- all commodities

Comparative Inflation based on WPI and HICP- all commodities

Inflation Rate

Period

— HICP-All Commodities — WPI-All Commodities

Comparative Inflation based on WPI and HICP Food Items

Inflation Rate

Period

— HICP(Food) — WPI(Food)

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