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which precludes it use in inflation targeting

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The Error in the CPI

which precludes it use in inflation targeting

Sebastian Morris[1]

Introduction

In this paper[2], we examine the trends in the CPI and the core part of the CPI to bring out a grievous error in the core CPI. It renders its use in monetary policy, and especially so in a regime of inflation targeting, highly problematic. The approach of the Reserve Bank of India (RBI) formally since 2014[3] has been to target the CPI. In addition, even earlier from 2011 onwards until 2014, although the RBI did not term its approach as such, it was in effect targeting inflation.

In a regime of inflation targeting when advance action has to be taken to curb inflation (as anticipated through models or surveys) from rising above (or falling short of) the target, the measure of inflation has to be quite accurate, and not have unknown biases.[4] The core inflation, which is the inflation over the items that change with a lag and are less volatile, is usually the target, since the non-core consisting of commodities in use by consumers (typically fuel and food) is volatile and is subject to supply side influences. In inflation targeting the attempt is to ensure that the while the influence of the non-core (due to supply side factors) is not targeted the impact of the same through rise in expectations on the non-core is targeted. Thus, the small movement of the core when the non-core moves up and down (without a trend) is not targeted, but the expectations of rise in the core would be. In practical terms a rise in the CPI in one year, due to a rise in the non-core is allowed to pass-through (the target is raised) but on a trend bases the further effects are not, and are to be acted upon. The measure of the core inflation is therefore very important and gross errors in the same would derail inflation targeting. It is true that the RBI targets the CPI rather than the core, its reason being that excluding food and fuel would be a travesty on the public, its share being larger than 45% unlike in the advanced countries[5].

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[2] This is a focused version of the same point that had been brought out in an earlier paper (Morris, S., 2020) and alluded to earlier (Morris S., and Tejshwi Kumari, 2019; Morris, S. 2019).

[3] See RBI (2014), which argued for inflation targeting, and suggested the CPI (rather than the core) to be "relevant" target.

[4] There is much recognition among the advanced countries pursuing inflation targeting, that the public is familiar with the CPI and understands it well. It is also readily and quickly available (unlike the implicit deflator). A desirable inflation target, in the mature economies, is about 2%, on the CPI, given a need for actual inflation to be 1%, (and not 0% to reduce the probability of the economy slipping into a deflationary spiral), and a bias of the CPI in overestimating the true inflation by about 1%. For a review and appreciation of inflation targeting, and the gold standard of practice for a central bank see Bernanke et al (2007). Since the Global Financial Crisis (GFC) there has been a debate of the merits of the same, though most policy makers continue to see value in a more flexible form of inflation targeting. Thus, see Woodford, Michael (2012) who contends that the failure of macroeconomic policy makers leading up to and during the GFC was not in inflation targeting, as many contended, but in not understanding the frailties of the financial sector.

[5] This position of the RBI can be critiqued since fuel and food is hardly under its control, being violative of basic control theory. However, we leave that for another paper. There is another issue with the CPI – that the weight for food is as high as 45%; when the share of food could not be more than 34% -it's share in consumption expenditure as per the National Accounts Statistics (NAS). The difference between the National Sample Survey (NSS) Weight for Food and the NAS is that while the latter is consumption weighted the latter is

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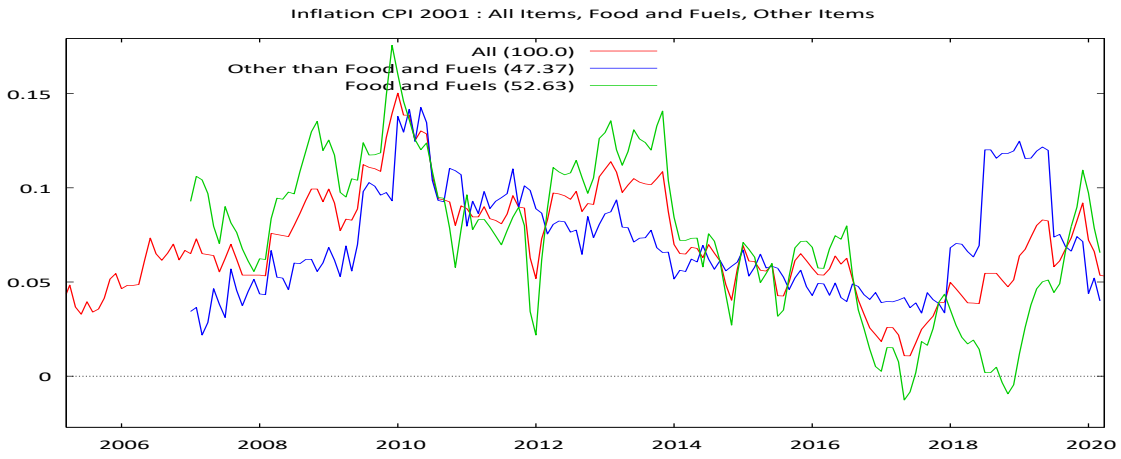
Even then, the importance of the core cannot be overemphasized. Even small forecasted movements in the core require the attention of the central banker when it targets inflation. Targeting the core is the gold standard among inflation targeting regimes.

Core and Its Components

Hence, it is important to consider the veracity of the core. See Figure 1, which charts the core, non-core (food and fuel) and overall CPI inflation from 2005 to the first two months of 2020. The measure is the YoY (log of the ratio of the index value this month by the month of the previous year). We have used the CPI for Industrial Labour -2001, which is available for a longer period. Observe that the core has been affected by the non-core, rising and falling with it. However, in 2010-11 and again in 2018 the core went up sharply when the non-core was declining!. That the core would have such sharp movements, not to speak of its movement against the non-core is very surprising to say the least, and should have put the RBI on the alert.

The models of nearly all schools in macroeconomics understand the inflation as measured by the core should move slowly and only with a lag to demand imbalances, except in situations of hyperinflation. While the earlier period was one of fiscal stimulus, it had followed a short period of recession as the Global Financial Crisis hit us. It is difficult to believe that the two years of recovery 2009-10 and 10-11 would have taken the demand outside the capacity, and the inflationary response would have been so quick. Even if the output was above capacity, it had to be so for a while before the inflation could rise. The non-core after having risen sharply in the run up to the GFC had been falling since then. The rise in the core during 2012 to 2014 is accompanied by the rise in the non-core. However, from 2018 (mid) to nearly end 2019 the core inflation shows a steep rise of nearly 10% when the non-core was falling which is a complete anomaly. The non-core which rises from 2019, could not have influenced the core (earlier). This very steep rise of 10% over a month is highly suspicious since in a normally functioning economy. This is so because inflation is the last of the macroeconomic variables to adjust, and movements in core inflation are well known to be gradual. It is shocking that the core rose by over 10% when the inflation in the core just a few months prior was under 5%.

Figure 1



person weighted, so that there is an inherent problem in using NSS data for expenditure estimation, especially for superior goods. However, the NSS is a most excellent source for estimating the human condition. Indeed the NSS weights should not have been used to construct the CPI2011-12, which is the latest series in active use by the RBI. That again is another issue, which we do not address here.

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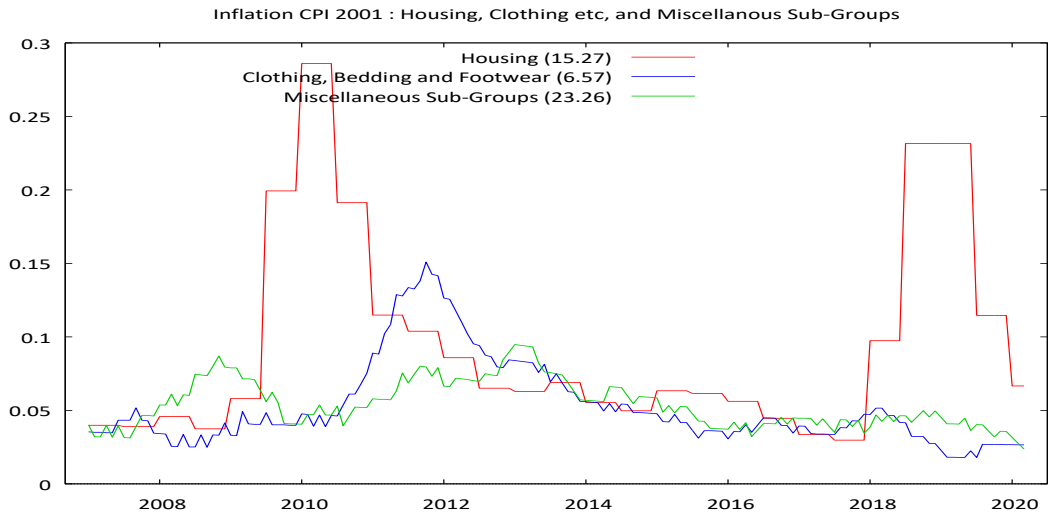
Looking at the main components of "Other" or core inflation, it consists of Housing (15.27), Clothing, Bedding and Footwear (6.57) and Miscellaneous items (23.26), besides Pan, Intoxicants etc. We graph the three major items of the core inflation in Figure 2 below. Observe that the behavior of Housing is altogether unexpected. There is a sharp rise of 30% c. 2010, which was preceded by a rise of 20% in 2009, and similarly the rise of over 25% in 2018 and 2019! Housing given contracts and with excess supply and being among the most fixed price of all services, should not show this dramatic behavior, clearly implying that there is something seriously amiss with the CPI 2001 for Industrial Workers. At a rise of between 25% with a weight of 15.27% (to the overall CPI)[6] would have contributed to a rise of (25*15.27)/(100-46.2), i.e. a whopping 7.09% in the core CPI (other) misdirecting any macroeconomic policy, and throwing to the winds any attempt at inflation targeting! Is this rise in Housing expenditure for real?

Figure 2



CSO's Caution

Apparently not if the "caution" flagged by the Ministry of Labour is to be understood. In estimating the "price" of housing the Central Statistical Organisation (CSO) /Ministry of Labour does not include House purchase prices since house is a capital item but the services from the same are included. It has split the set of survey households into those who pay rents, those whose employers pay rents, and those which are free. The problem is that those for the latter two, the rents/cost are imputed based on the House Rent Allowance (HRA) paid, which with the Pay Commission awards suddenly change. While these are costs to employers they are not to the employees[7]. Moreover, to use the same to

[6] For the weights see Labour Bureau (2006).

[7] This is mentioned in CSO (2010). We could not locate a manual for the 2001 Series but we presume that the Manual published in 2010 would apply to the approach underlying the 2001 series. 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

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impute the "rates" for all rentals of the second and third type is problematic. There is no data on the weights for employer provided housing. But, it should be small since most industrial workers would be staying in their own houses or would have rented from the market. Only Public Sector Undertakings (PSUs) and government industrial workers would be staying in government quarters for which there are implied rents. Most importantly, it would be conceptually incorrect to consider the rent burden on the housing to be the HRA which jumps up with DA and with the Pay Commission award. Essentially then housing (or at least that part of the same i.e. indexed to HRA would move with the CPI, i.e. largely the commodity part of the index, and would get a big jolt when the Pay Commission Awards are implemented, which makes a large lagged adjustment. Thus, the shooting up of the house part of the CPI takes place after the implementation of the 6th and 7th Pay Commission awards. Since the Central government is the first to implement, followed by PSUs, then "Autonomous" Institutions, and then state governments the lag with the peaking around the time the PSUs implemented is only to be expected. We have checked with various Office Memos of the Central Government (Oms) and the dates for actual notification of the implementation of the 6th and 7th Pay Commissions are respectively 29th Aug 2008 and 7th July 2017[8]. This method of computing the rent as the housing license or charge back by the employee, and its extension to many more who are not government or quasi government employees, vitiates any use of the CPI as an index of inflation for macroeconomic management. This is so even if it is meaningful as a cost of living index where the counter part is the total income of the household. [9]

Thus: "*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*." (p.21. CSO (2010))

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[8] Vide GOI (2008), GOI(2017)

[9] It also raises the aside of the interesting price feedback effect of pay increases through the dearness allowance. Thus when there is pay increase the rise in HRA etc for those staying in government houses is partly notional, as the large rise in the CPI (housing driven) due to the same (it should not have risen for the population at large), can be said to partly neturalised. However, the subsequent rise in dearness allowance creates a feed back effect akin to "indexation". With the public sector workers being few, when based on the same rise in CPI the RBI puts contractionary policies in place all others than government and parastatal employees are the losers through the decline in investment, job creation and overall demand.

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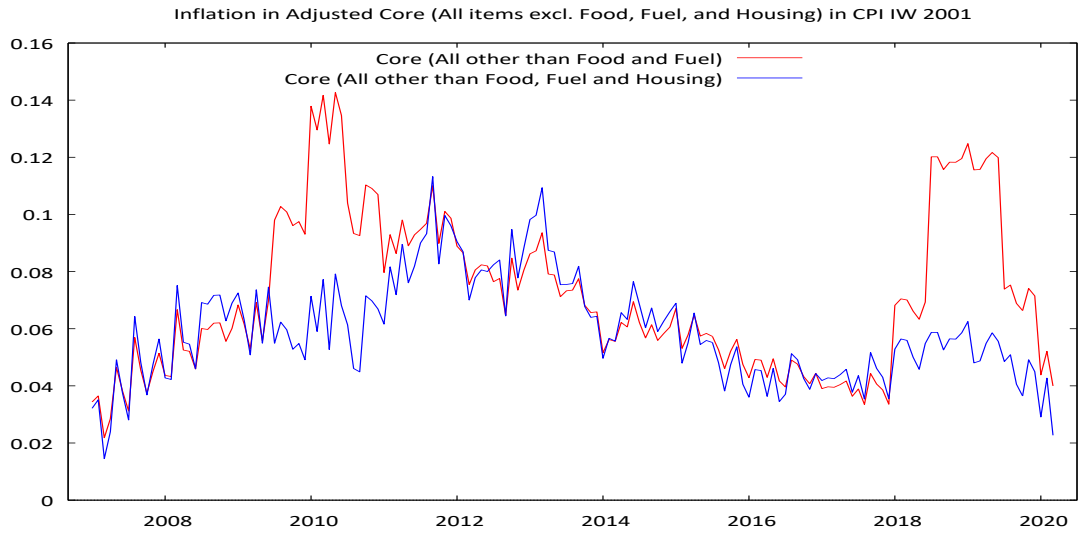
Housing's Distortionary Role

Once we adjust the core by removing housing, we see the see the core to be closer to the expected behavior. See Figure 3 below. Even then the very sharp rise in 2011 end and in 2013 can be understood as arising out of the pass thru effect of high food inflations caused in these periods due to the supply side inflation that was high in food during these periods. However, the rise in inflation of clothing bedding etc. to as high as 15% needs further examination in terms of the veracity of the survey and weighting processes. Indeed, from the data available the inflation on almost all non-commodity items are questionable.[10]

Figure 3



CPI11-12

We now consider the CPI 11-12 series although the same in a detailed way is not available before 2014. A new CPI (as a whole) with weights derived from the NSSO's National Sample Survey of Consumer Expenditures 2011-12 vintage has been in use by the RBI ever since it was available, and today the same is in use. The inflation on CPI and its main components is based on this 2011-12 CPI as a whole series. See Figure 4. Observe that the core inflation has been coming down steadily from 2012 onwards and rose significantly from late 2017, fell and again from early 2019. While the second rise can perhaps be attributed to the rise in the Non-Core (Food and Fuel), and its pass-thru effect of the same, the rise from late 2017 cannot be since the Non-Core was falling in this period. From about 3.8% in the middle of 2017 it rose to a peak of nearly 6% and stayed at that level till October of 2018 before it began to decline. The "unwarranted" swing in the Core is not as large as in the case of the CPI2001 for Industrial Workers considered earlier. However, a sudden rise in the core of 2.2% is problematic when not accompanied or preceded by the rise in the Non-Core.

When we again examine the Housing inflation with the 2011-12 series, we find the same anomalous rise. This time around there is a sudden impetus of 3.5% in the Housing inflation from around 4.7 to 8.2 % during the same time, for very much the same reasons. Thus, the anomalies have not gone

[10] The approach to surveys of fix-price produced goods has to very different from that of flex price goods like commodities and near commodities. Thus a six-month gap to elicit rents in (rightly) justified by the CSO as ". However, when the resulting rents of its housing index shows a jump

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away with the new series and are still significant to have deterred the effectiveness of macroeconomic economic policy making. See Figure 5.

Conclusion

Thus, a serious re-examination of the CPI surveys needs to be carried out and meanwhile it would be meaningful for the RBI to use the CPI or the core CPI to guide policy action. We suspect that in having used the same, the RBI may have unwittingly tightened to give India its longest period of low growth from 2012-13 onwards to the present, even if we were to exclude the COVID19 period.

Figure 4

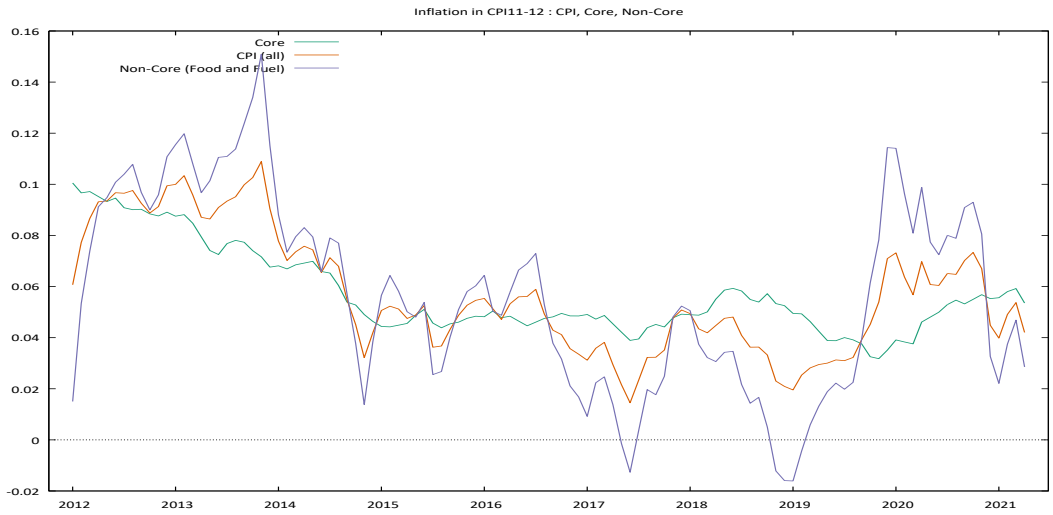
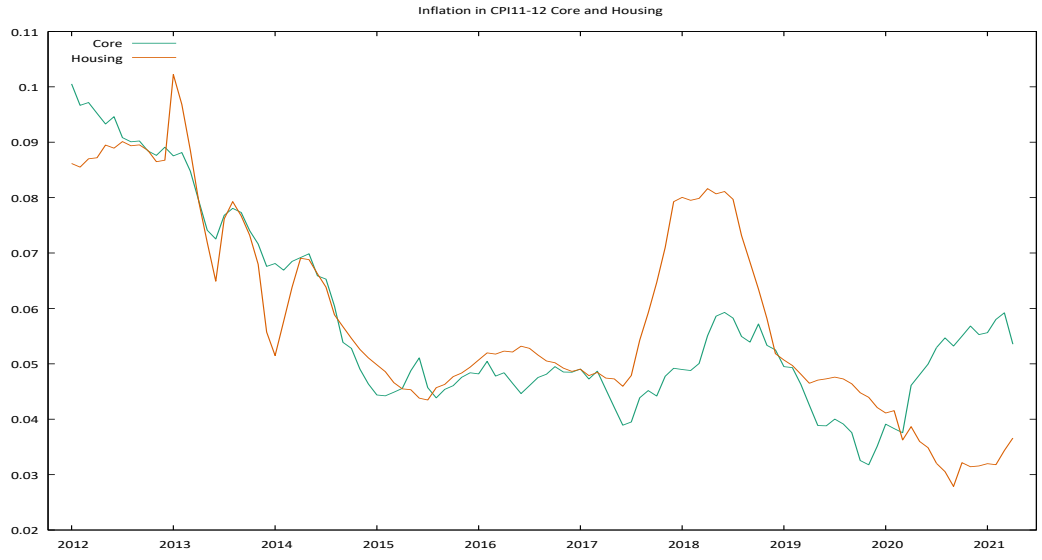


Figure 5



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