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STEERING THE MACROECONOMY WITH A BROKEN COMPASS AND STUCK RUDDER?

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Abstract

In this paper we bring together the findings of Subramanian, A. (2019) and Morris and Kumari (2019), and others to claim that the problems with the new national income series are real and need to be addressed. The CPI11-12 too is problematic since the weight of basic food in the CPI11-12 is as high as 45% when there is no way the same could have been more than 34%. As a result macroeconomic policy may have been handicapped pushing it to restrictive especially monetary policies that may have been one of the underlying causes of the current recession in the economy.

THE CONTROVERSY

The controversies regarding India's growth rates have the danger of being politicized when the debate ought to be at a purely professional level. In an event organized by the NCAER, Arvind Subramanian (hereinafter AS) the former chief economic advisor, convincingly argued that the growth in GDP over the period 2011-12 to 2016-17 may have been overestimated. He also went on to put figures and confidence intervals to what the GDP growth would have been, with his most probable figure for GDP growth on the average over the same period to be 4.5% rather than the 6.8-7.2% of the official figures. The working paper¹ arguing and making these estimates, had been put out a few weeks before. The paper had attracted much attention in both the media and in academic and policy circles. Nearly all newspapers in India covered snippets from the same, which were followed by many articles, many claiming that AS was wild off the mark, and others that the official figures and methodologies needed to be comprehensively examined. However, what was remarkable was the Economic Advisory Council of the Prime Minister(EAC), put out a "rejoinder"² against AS, which was both against him questioning the veracity of the statistics, and the method used. The rejoinder attracted much attention, and was followed or preceded by individual members of the EAC going all out against AS and his paper.

DOUBTS

The problem had been flagged earlier by Morris and Kumari (January, 2019)³, hereinafter MK, who had also put a figure to the overestimation. Measurement issues had been raised by Nagaraj (2015)⁴, Dholakia, Nagaraj and Pandya (2018)⁵ (DNP) as well. Hence what had incensed the EAC members, was the apparent 'betrayal' by AS, since he had been chief economic adviser, with the NDA. However, there was nothing of the kind since AS had in the Economic Survey 2014-15, pointed to the problem and had provided enough suggestions for the discerning reader to doubt the veracity of the official estimates. Thus AS's 2019 paper must be seen as now explicitly and in a detailed way arguing the overestimation. It also went on to estimate the actual growth rate.

AS's APPROACH

The approach of AS has been to cast the growth rates in a panel model across many countries over time that spans periods under question using a limited set of independent largely demand side variables (exports, credit, imports, investment share, electricity) to show that India in the period since 2011-12 has been a consistent 'outperformer' while not so in the previous period. The non- inclusion of electricity deepens this finding. The critique made by

¹ <https://www.hks.harvard.edu/centers/cid/publications/faculty-working-papers/india-gdp-overestimate>

² Item 6. <http://eacpm.gov.in/reports-papers/eac-reports-papers/>

³ https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3311951. This paper gathers some of the key findings from the same to build the argument that both the new estimates and the CPI as defined have been problematic.

⁴ <https://www.epw.in/journal/2015/13/commentary/seeds-doubt-new-gdp-numbers.html>

⁵ https://www.epw.in/journal/2018/35/commentary/manufacturing-output-new-gdp-series.html?0=ip_login_no_cache%3Db2a002e5f85614f66cd2009fdb7b30e5

the EAC that many countries are not on the regression line, and hence the conclusion of overestimation is unwarranted is not per se justified.

In such large sample cross sectional analysis most countries would lie on either side of the estimated line, however nearly always the country would be on one side or the other, not on both sides when the time period considered is also short, while in this case there is flip for India from one period to another. AS further goes on to put a number to the overestimation through a model cast in log of values of both the dependent variable and the independent variables, rather than in terms of growth rates, to get a “stronger” fit, to estimate the “wedge” to be as much as 2.5% on an average in the period since 2011-12. The problem in these estimates was that the model being in log of values (i.e. with levels), which are non-stationary, simple application of ordinary correlation and regression is not acceptable to the econometric profession. While this critique is right, even methodological finesse could not have avoided the conclusion that there was deep underestimation especially in manufacturing.

THE PROBLEM

Even the RBI early on in 2015 had cast doubts on the growth rates emanating from the new series. And MK’s estimation of the overestimation was conveniently ignored by the EAC. Nowhere has the EAC or its members in their own capacity addressed the issue of the vast wedge in the estimate of manufacturing GDP growth and the growth arising out various physical indicators of production in the sector.

For the macroeconomic policy maker, the ‘true level of GDP’ is hardly ever the issue but the growth rate of national income is of supreme importance. And these are known to hardly ever vary by more than a percent and that too for at best a couple of quarters, when there have been base year or method changes. That even during the overlap period and for as many as 10 quarters the growth rates have differed in one direction by as much as 1.3% as between 04-05 and the new series, should have been a matter of concern. In manufacturing the old series over the overlap period gives a growth rate of 0.51%, while the new 5.47%, an incredible difference which should have woken up the statisticians! Indeed, as Table 1 indicates the sectoral differences are unacceptably large while the overall difference is a worrying 1.36% .

EXTENDING GDP04-05

An interesting exercise is to extend GDP04-05 growth rates to the period covered by the new 11-12 series and to compare the two. MK develops a model for GDP growth in various major sectors as a function of growth of physical and near physical indicators of the performance of the very same sectors, to extend GP04-05 with much confidence when the reliability of the model’s parameter estimates is very large. In extending manufacturing GDP04-05, with determinant variables that are the various component Indices of Industrial Production (themselves chained to form a continuous series spanning both periods) a very good fit of growth rates with growth rates i.e. with stationary variables is achieved. Forward projection with much confidence is then possible. This overcomes the possible objection to AS that he had worked with log levels. Parallel checks by using only significant IIPs rather than main IIPs, or even using the principal components from a large numbers of IIPs do not change the results

significantly. The parameters of the models are robust, and all models give almost the same measure of the growth rates over the period 11-12 to 17-18.

Figure 1 gives the results of two models (the growth rates of GDP04-05 almost overlap the models) in the case of manufacturing. The model's adjusted R^2 is as high as 0.88, and the P-value is nearly zero for the regression, which are very significant results indeed. Figure 2 similarly gives the growth rates for the Trade, Transport, Storage and Communications Sector. (Morris and Kumari, 2019)

For the services subsectors, since there are hardly any direct physical indicators of performance, the indicators used are a combination of price, sales, credit and export and import of services. *'Price indices of nearly 20 items CPI2001-IW for which the longest series were available constituted the set of price indicators. The net sales pertained to 16 items, and the "inflows" and "outflows" (i.e. exports and imports) to 20 items. The growth rates of each of variables were computed to be used. For the CPI variables the principal components of the growth (inflation) in the same were computed from the 20 original CPI items. The major principal components were used in the models for various service subsectors. The dependent variable is the growth in GDP04-05 in the particular subsector of the services sector, at constant prices.'* (Morris and Kumari, 2019)

For the subsector – *'Community and Personal Services, the net sales of the health industry – corporate sector, the educational sector credit, incremental non-food credit (housing sector), and 4 principal components from the CPI's principal components were used. For the Finance, Insurance, Real Estate and Business Services subsector, the variables used were: Net sales – Business services and Consultancy industry; Net sales – Construction and Real Estate industry; Inflows of computer services (in Rupees); Inflows of Pension and Insurance Services; Inflows of computer services (in US \$); and four principal components of the inflation in CPI. For the Trade, Hotels, Transport, Storage and Communication subsector the variables used were: Net sales – Transport industry; Net sales – Communication services industry; Net sales – Storage and distribution industry; Inflows Transport; Nonfood sector gross bank credit –Roads; Non-food sector gross bank credit – Transport; Nonfood sector gross bank credit –Shipping;* and two principal components of the inflation items. (Morris and Kumari, 2019)

For the Agricultural Sector the growth rates as in the new series were "accepted" since there was no way to check for its veracity, and anyway the seasonality in the quarterly GDP figures in both the old and the new series are very much dependent on the way the CSO breaks up essentially the annual figures into the various quarters.

Combining these subsector growth levels (in turn derived from the forecasted growth rates) by using weights as in the older series results in the overall GDP estimates and hence growth rates for the period covered by the new series. These are reported in Table 2.

The numbers as in Table 2 are interesting. The sectors without much interaction with the small/ informal segments of the economy are either not overestimated or are actually "underestimated" –most notably Community and Public Services (both small and government but each non-interacting), Electricity Gas and Water (entirely large and regulated), construction (large and small but dealing largely with an informal labour market, and having

inputs from large –steel and cement). However, the other sectors with significant inputs from the small and the informal sectors –Manufacturing, Trade etc., Mining and quarrying are indeed overestimated. Similar patterns are observed over the overlap period as well as in Table 1. Also the newer measure shows lesser volatility.

WHAT COULD BE THE REASONS?

Therefore, we cannot but speculate that the “terms of trade” between large and small firms may account for the observed overestimation. In times of recession or slowing down the larger firms are likely to push down the prices (or post phone increases) of the smaller firms from whom they make purchases. If now under a method of single - output alone - deflation and not double deflation as would have been first best (DNP), the real and nominal value added of the larger (reporting) firms would be overestimated, and when the same nominal values and prices are used to estimate the growth of the smaller firms by extrapolation to firms without or with delayed data (smaller ones) then the bias of overestimation over a period of decline is possible. In a period of rising growth there is the possibility of underestimation as well. The underestimation was beginning to show as growth picked up in 2018, due to large increases in public spending which may now have been reversed again thanks to the delayed effect of demonetization, and fall in agricultural prices, as consumption by small producers may now have slowed down, and the enormous increase in uncertainties that have kept private investments from rising. Additionally, over the same period the smaller firms and the informal sector may have grown more slowly in relation to the larger firms than before, since the period after 2011-12 was one where the household sector was all but collapsing, and the “schism” in the labour market having collapsed and many indirect tax concessions for smaller firms had been effectively falling due to the rising share of indirect taxes that were vatted. This may have accelerated since the implementation of the GST.

In such a situation of deep changes in the ‘size structure’ of the economy, when it is largely imputations (based on large firm data) that drive the estimation of the bulk of the sample firms in the MCA21 database, and of the smaller firms not in the MCA21, then mis-estimation cannot be ruled out. However, AS’s contention that “*the inappropriate use of single deflation can artificially inflate growth figures by significant amounts when oil prices fall sharply, as they did in the post 2011 period, especially the post 2014 period... (p.19)*” may only be weakly tenable since the same would be tantamount to believing that economies take an unduly long period to adjust to exogenous price changes that shift the nearly horizontal aggregate supply curve of macroeconomic models. We know from the empirically consistent standard models of macroeconomics that slow or delayed adjustment is actually of inflation when this arises out of demand misalignment. Yet the idea that single deflation is inappropriate in a period of structural change can be accepted.

HURTING MACROECONOMIC GUIDANCE

The implications of the EAC throwing out of the window any questioning of the growth estimates is akin to a ship’s captain refusing to accept that a broken compass, may have resulted in the ship veering far from its course. The tragedy is that this has come after a great

deal of stress that the use of CPI11-12 may have imposed on policy makers - both the Reserve Bank and the Government. The CPI11-12 has a weight of 45% for food. The weight of agriculture in national income however is no more than 17%. And the weight of Private Final Consumption Expenditure is at the very least 57%, the rest being government expenditure, net exports and investment which do not involve spending on food. So the weight of food in CPI could not be more than $17 \times 100 / 57 = 29.8$ say 30%.

The use of the faulty, CPI11-12 as a measure of inflation in macroeconomic demand management is therefore problematic and could have imposed a pressure for monetary tightening over much of the post 11-12 period which also coincided with the withdrawal of the fiscal stimulus over the start of the period. The first 9 months and a year of the Modi government was one of willy-nilly fiscal "tightening" since with the extreme centralization that the PMO's office brought about in the first nearly two years even the budgeted expenditure could be only slowly spent, as the ministers and secretaries in the various departments looked up to "conscious final go ahead" of the PMO. It was only in the 3rd year that the expenditures finally caught up with the budgetary allocations, and then the revival of NREGS would have provided a fiscal stimulus. However, the recessionary effects of the demonetization would have continued over 2017-18 and further, as well. The impact of falling agricultural prices (since 2015-16) would have given a supply side push to GDP over 2017-18 and perhaps a six months more, only to be reversed by a delayed consumption demand fall (since mid 2018-19) as incomes of agriculturists fell due to the adverse terms of trade they suffered. The sharp decline now in consumption is no doubt due to the dual effect of fall in agriculturalist (small producer) income growth, and in the slowness growth of incomes of many petty producers in manufacturing and services whose consumption spending may have declined only now after nearly a year or so after their incomes were arrested by the demonetization, and the rise in the "effective tax" on small producers with GST.

With a stuck rudder in the form of the CPI, and a broken compass, the Modi 2.0 may continue to be cheated by misaligned macroeconomic stances.

Table 1: Growth Rates Average of Quarterly (YoY) Exponential 2012Q2 to 2014Q3			
	News 11-12 series	Old 04-05 Series	Difference
All sectors	6.04	4.68	1.36
Agriculture, forestry and fishing	3.31	3.14	0.16
Mining	2.17	-0.99	3.16
Industry	4.45	1.15	3.30
Manufacturing	5.98	0.51	5.47
-Electricity Gas and Water	4.45	5.01	-0.55
Services	2.25	2.01	0.24
-Trade, Hotels, Restaurants etc	7.92	6.66	1.25
-Finance, banking real estate etc	8.06	3.80	4.26
-Community, Public Services etc	9.97	10.89	-0.92

		2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Manufacturing	A	1.66	0.44	0.20	3.56	5.66	8.21
	B	5.40	4.89	7.54	12.01	7.64	4.21
Mining and Quarrying	A	-0.50	1.54	1.12	3.27	3.53	2.59
	B	0.46	0.11	8.90	12.90	11.82	2.84
Electricity, Gas and Water	A	5.12	6.16	10.53	5.99	6.08	5.78
	B	2.63	4.07	6.97	4.63	8.86	6.74
Construction	A	1.67	1.63	5.09	6.38	2.45	6.87
	B	0.30	2.69	4.24	3.63	1.37	3.63
Agriculture etc.	A	1.48	4.65	0.64	0.96	5.92	3.13
	B	1.55	5.29	0.34	0.96	5.92	3.13
Services	A	7.37	6.08	7.09	11.01	9.40	5.38
	B	8.02	7.38	9.38	9.11	7.22	7.63
- Community, Personal and Social Services	A	7.89	3.83	9.58	9.63	9.72	4.40
	B	4.21	3.89	7.99	5.91	10.09	9.61
- Financial, Insurance, Real Estate and Business Services	A	10.46	11.85	9.38	12.82	13.59	10.03
	B	9.32	10.36	10.45	10.23	5.44	6.38
- Trade, Transport, Storage, Hotels, and Communication Services	A	4.98	2.87	3.99	10.14	6.01	1.45
	B	9.36	6.28	8.93	9.69	7.02	7.72
All Sectors	A	4.98	4.59	4.99	8.07	7.84	5.41
	B	5.31	5.90	6.93	7.83	6.86	5.92
<p>A- Estimate of the growth rate in GDP04-05 at constant prices; B- Growth rate in GVA11-12 at constant prices; Tables 3 and 4 of MK combined B- Source Morris and Kumari, 2019</p>							

Fig. 1: Growth Rates of Manufacturing Output (Model 1 and Model 4)

Source From Morris and Kumari (2019)

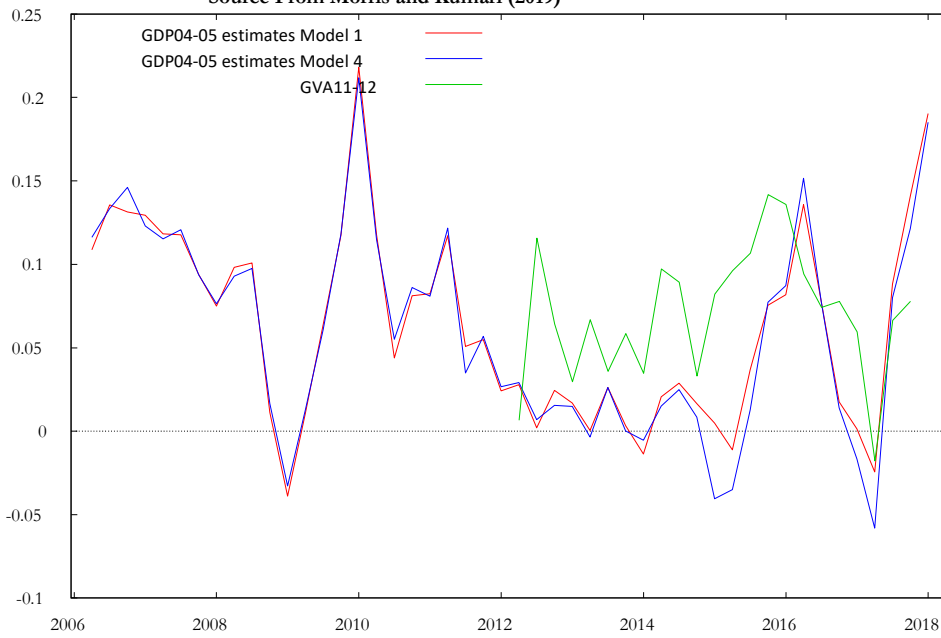


Fig. 2: Growth Rates - Trade, Transport Storage and Communication (At Constant Prices)

Source: Morris and Kumari (2019)

