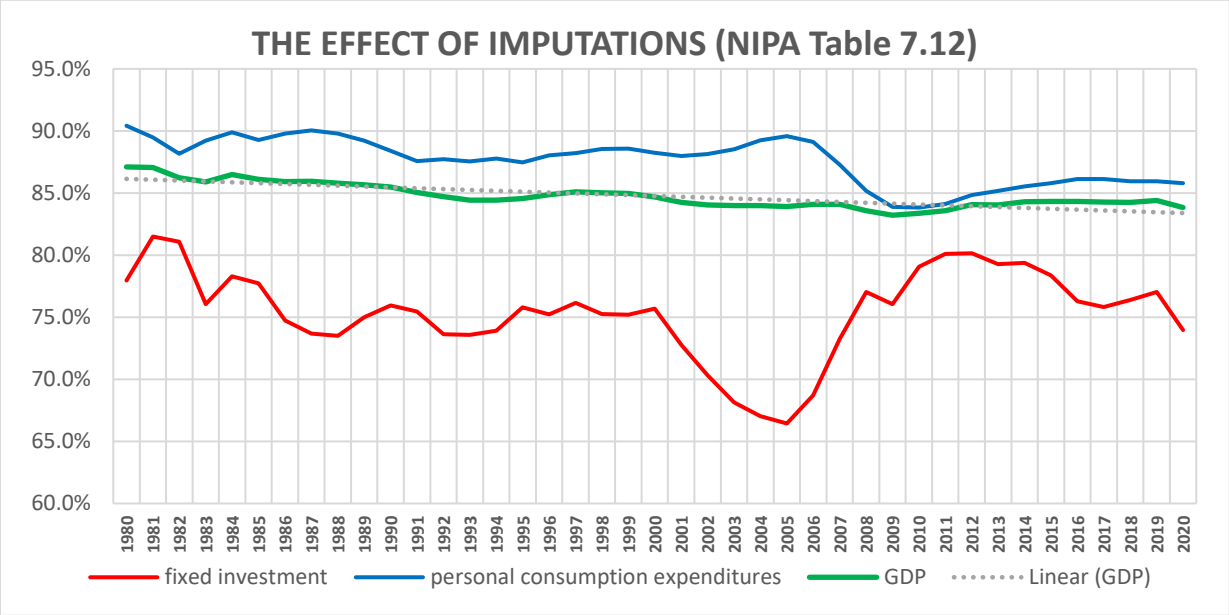
HOW IMPUTATIONS AND CHAINED DOLLARS CAN DISTORT GDP DATA IN A PERIOD OF INFLATION.

In my previous posting I disputed the contraction in GDP amounting to 1.6% and 0.9% annualised over the first half of this year or by 0.4% and 0.2% quarter on quarter. I implied this was understated because of imputations and the calculation of inflation. Here I provide the evidence for that.

I would like to begin with imputations first. Imputations have played a bigger and bigger role in calculating GDP. The graph below divides GDP before imputations by GDP after imputations. Thus if imputations rise, then the graphs must fall because of the increase in imputed GDP as the denominator. This can be seen in the case of GDP and personal consumption. In the case of fixed investment, part of the volatility there has to do with imputations based on owner occupied housing. (See NIPA Table 7.12)

Graph 1.



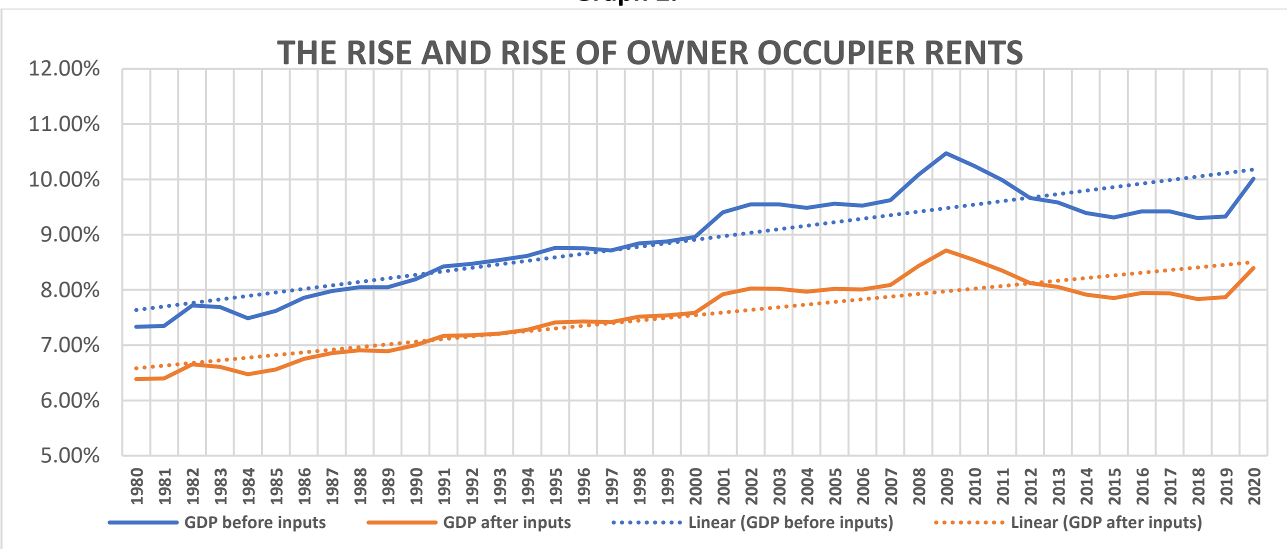
Here is a brief explanation of why the BEA uses imputed sales. Notably they single out owner occupied rents. However this explanation is limited, but before explaining why, let us take a step back. Leontief and Kuznets both emigres from the Soviet Union are two of the three fathers of the modern System of National Accounts or SNA. They were steeped in the methodology of Volume 2 of Das Kapital where Marx first observed that the value of the final sales was equal to the value expended on that product by the various producers in the chain of production. Therefore, theoretically the total value of final sales must be equal to the value of labour consumed in their production. That is correct provided all sales are sales, that is to say they represent the exchange of a produced commodity for money.

Here lies the problem with imputed sales. There are four classes of imputed sales. Firstly, they can be completely fictional as in the case of owner occupier rents where it is assumed the owner is both landlord and tenant at the same time using their right hand to pay their left hand a rent. Secondly, where only money changes hands and not money for a commodity, as in finance. Thirdly where they are counted twice, for example a capitalist receives a dividend which is recorded and then uses part of that dividend to pay his or her gardener whose salary is also recorded. Finally, and most complicated, they can be used

to turn a cost (an intermediate sale) into capital by means of an imputed final sale. The last said is found particularly in the sphere of Research and Development as well as software production and it is a significant number, about half the size of owner occupier rents.

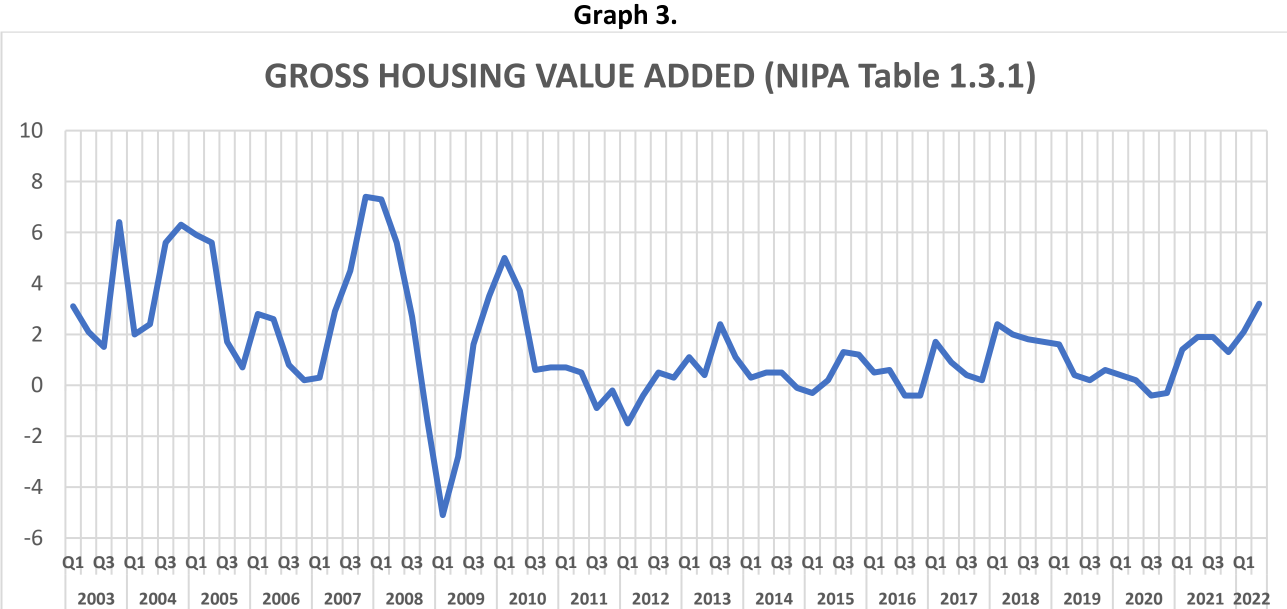
I would like to single out owner occupier rents. In any period of rising house prices and associated rents the contribution of these rents via the route of personal consumption expenditures (services) inflates GDP. This can be seen by the pyramids in the graphs below. Recent data shows there has been a sharp rise in these rents in 2020 which has endured up to Q2 of 2022. (Unfortunately the series drawn from NIPA Table 7.12 ends in 2020).

Graph 2.



Fortunately NIPA Table 1.3.1 extends to Q2 2022, and it shows how the contribution of owner occupier rents helped increase Housing GVA from 1.3% in Q4 to 3.2% in Q2 2022 a rise of 1% over Q1 and Q2.

Graph 3.



Not all of this 1% is due to owner occupier rents, as there are real rentiers out there, but it does account for approximately 75% or 0.7% over the last two quarters making up the period of recession. To put this in perspective, it would have reduced the 2.8% increase in real personal consumption expenditures by a quarter to around 2%. Or to put it in the context of contributions to GDP (NIPA Table 1.12) Service PCEs would have been reduced from 3.09 over the two quarters to 2.3 which would have reduced GDP by 0.8.

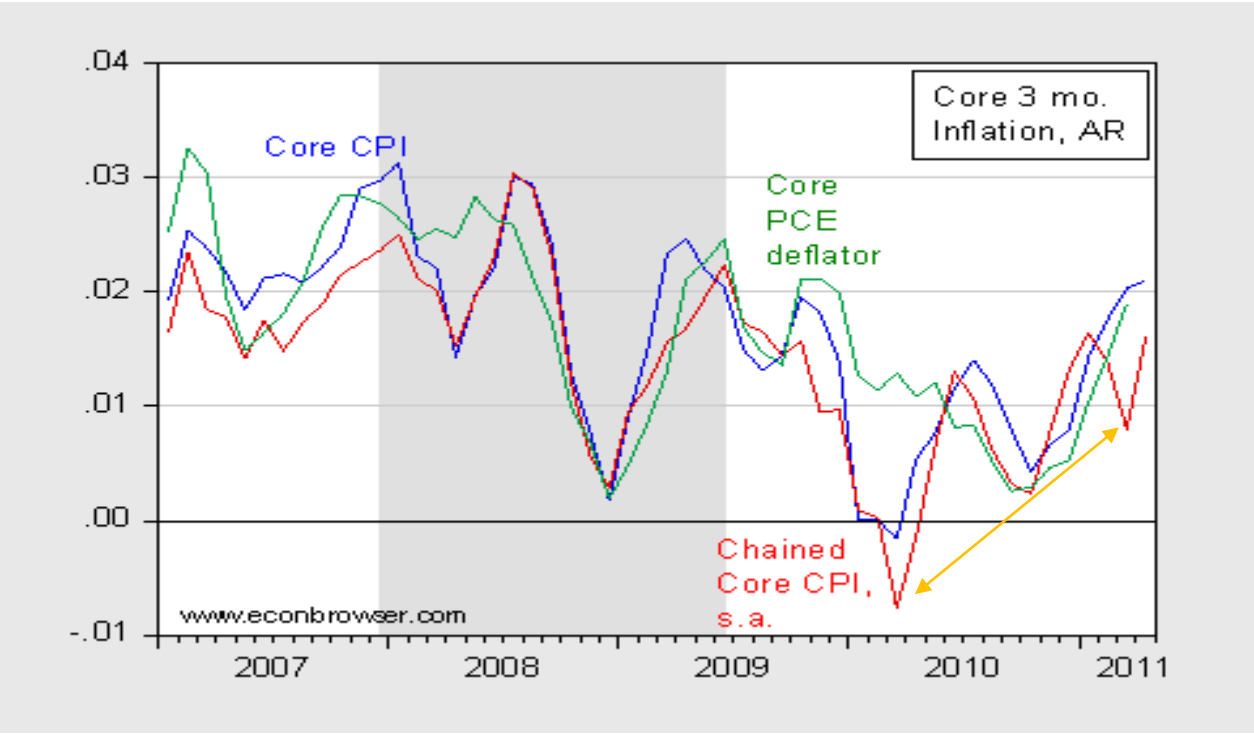
We will return to this difference at the end as we now need to examine chaining of dollars. But before we so it is important to note that imputations appear throughout the SNA and there effect in a period of inflation, like owner-occupier-rents, is to inflate GDP.

Chained Dollars.

Statistical Bureaus around the world have adopted chaining instead of simple annual increases in prices because they claim it provides a truer picture of inflation as it is weighted for changes in consumption habits. Here is a brief explanation of why Chain Weighting is purportedly more accurate. "*Chain-weighted inflation measures tend to give a lower inflation rate than standard inflation rates. This is because if goods go up in price, you buy less of them. Therefore these more expensive goods automatically get a lower weighting. However, in the traditional measure of CPI, the weights are not changed (maybe once a year, in US weights were only updated every ten years, now every two years)." And* here is a primer issued by the BEA explaining chained dollars.

Here is an interesting graph taken from the article linked above. It shows the divergence between Core CPI and Chained Core PCI which can be significant depending on the phasing of the business cycle. (See yellow arrow.)

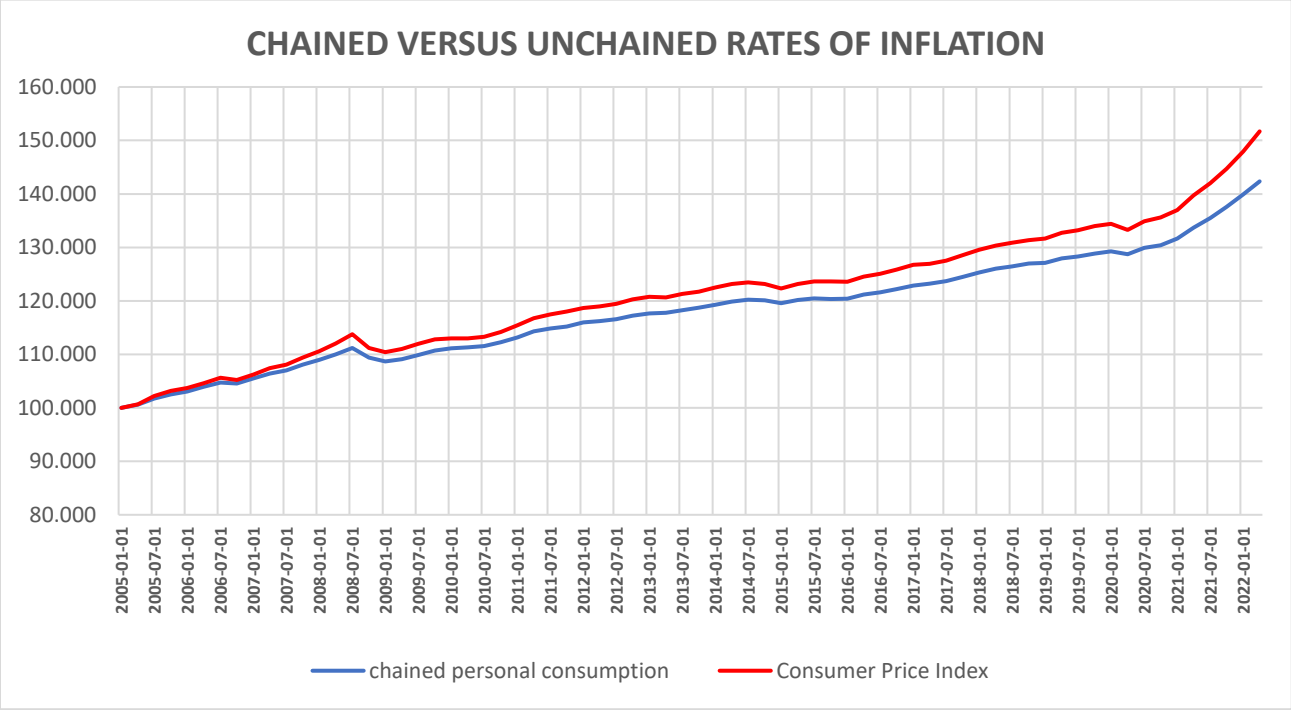
Graph 4.



The paradox today is that this weighting should have amplified the chained rate of inflation because of the effect of the pandemic has had on spending habits, rather than to slow it down. Due to the pandemic and the rise in share prices up to the end of 2021, the sales of higher priced items have increased disproportionately. Normally inflation leads to consumers substituting cheaper goods but because of inequality and supply chain issues this has not happened until recently. I pointed to this phenomena in a recent article. Given that the incidence of purchases of higher end products has increased and with the correct weighting, this should have added to inflation rather than detracted from it. This certainly appears to be the case with housing. This being so, the chained inflation rate should be out-accelerating the simple inflation rate at this time (despite the move to services from goods).

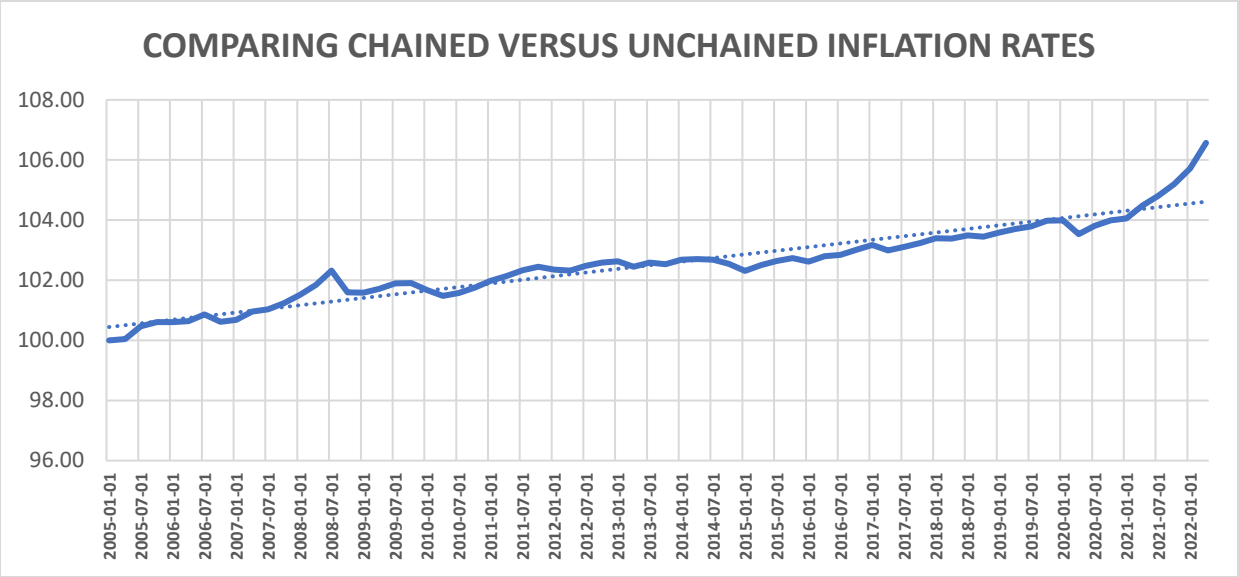
In the analysis below both the chained and simple rates of inflation for consumer expenditures are recorded. The chained inflation rate is taken from FRED Table PCECTPI which is the seasonally adjusted rate for Personal Consumption Expenditures (PCE), while the unchained rate is taken from Table CPIAUCSL and covers the Consumer Price Index. Contrary to our above assumptions, in fact it is the simple unchained rate which has risen faster.

Graph 5.



The relative movement between the two rates can be better seen in the next graph. It shows a rapid rise in the relative rate as measured by the CPI between 2021 and Q2 2022. The difference between these two periods amounts to 3%, equal to the increase over 12 years from 2008, which would have effectively wiped out any increase in personal consumption expenditures had it been used instead of the chained PCE inflation figure with its apparent incorrect weightings and adjustments. In turn this would have had a depressive effect on GDP deepening the contraction as we are about to see in the next section. We are reminded that GDP has been driven, not by investment, but by personal consumption.

Graph 6.



Crunching the numbers.

In Q2 nominal GDP stood at $24.852 billion while in Q4 it stood at $24.003 billion a difference of 3.54%. However inflation (chained) during that time was 4.2% yielding a real fall of about 0.7% or annualised about 1.4%. However, were we to use non-chained inflation, we would arrive at an inflation rate of 4.8% comprising inflation of 4.7% for fixed investment and 4.8% for the Urban CPI This difference of 0.6% which we picked up in Graph 5, doubles the cumulative fall in annualised real GDP to 2.4 – 2.5%. Thus it is debatable whether the official figure is the correct estimate because of its possibly perverse weightings of expenditure.

Now it is time to look at the issue of imputations. In the case of gross value added for housing which rose from 1.3 in Q4 2021 to 3.2 in Q2 2022, its addition would have increased the annualised increase in GDP by 2%. This illusory figure of 2% or more precisely 1.5% when adjusted for owner occupier rents is confirmed by analysing line 6 in NIPA Table 1.3.3 Thus the annualised fall in GDP could be as high as 4.0% before we take into account further imputations such as investment in I.P. (R&D being the biggest component) which we are unable to do because the data is not current enough.

Conclusion.

Using the chained data and an inflation rate of 4.2% between Q4 -2021 and Q2-2022, the annualised fall in real GDP as stated by the BEA is of the order of 1.2 to 1.3%. Using the unchained inflation data the inflation rate rises to 4.8% and the annualised GDP fall increases to 2.4–2.6%. Deducting the contribution provided by owner occupier rents in a period of accelerating housing inflation, the annualised fall rises again to around 4%. Or in the context of the first half of the year comprising two quarterly contractions, real GDP in fact is 2% lower than in Q4 making this a mid-range post-war recession and one which is by no means over.

It is likely that the real number for the cumulative GDP fall in H1 is closer to 2% than it is to the 0.6% proffered up by the BEA, particularly when we take into account the difference in the rates of inflation

found in Graph 6. For these reasons it is important for Marxian analysists to crunch the numbers and not take them at face value.

It will of course be impossible for the NEBR to avoid classifying this period as a recession if GDP contracts in Q3. Worse for the Biden Administration the GDP reports will be released in proximity to the mid-term elections. All the current data suggests that the contraction is continuing and not only continuing but deepening.

Brian Green, 2nd of August 2022.