



BlackEconomics.org[®]

“Real-Time SS COLAs: A Simulation”

The US’s current bout of inflation causes many to focus on cost-of-living adjustments (COLAs) with intense interest. A COLA is designed to adjust a stream of payments in accordance with a changing price level to preserve the purchasing power of those payments. US Social Security (SS) benefits are an important payment stream that receives a COLA, which is based on the Consumer Price Index (CPI) for Wage Earners and Clerical Workers—the so-called CPI-W.

The current methodology employed to implement the SS COLA is to adjust the amount that would otherwise be paid in January of year t by the annual percent change in the average CPI-W for the third quarter of calendar year $t-1$. The COLA is calculated as Q3 (July, August, and September) of year $t-1$ divided by the same period in year $t-2$.^{1,2} This COLA is sustained throughout year t , and all net new SS payments made during the remaining 11 months of year t reflect this COLA.

While SS beneficiaries generally welcome receipt of COLAs, in many respects, beneficiaries are shortchanged in three

respects: (1) Changes in the price level during quarter 4 (the months of October through December) of year $t-1$ are unaccounted for during year t —they are only accounted for in January of year $t+1$; (2) changes in the price level during the first three quarters (the months of January through September) of year t are unaccounted for during year t —they are only accounted for in January of $t+1$; and (3) changes in the price level during the fourth quarter (the months of October through December) of year t are unaccounted for—they are only accounted for in January of year $t+2$. This less-than-perfect implementation of the COLA is partly attributable to past administrative and technological constraints; i.e., the lack of technological and operational capacity to capture price changes, to calculate a COLA, and to implement it rapidly and evenly across the tens of millions of SS recipients.

This Analysis Brief suggests that, given the computing capability now available to the SS Administration and the ease with which funds can be dispensed by the US Government, efforts could be made to make the SS COLA more perfect. To garner support for such efforts, we conducted a

¹ We have argued that the decision to base SS COLAs on the third quarter may be arbitrary and may reflect “Cherry Picking” by the US Government. See the related essay [here](#).

² It is important to note that, as designed by the US Congress, SS COLAs are determined to be “positive” or “zero.” That is, COLAs are positive if there is inflation. However, if there is no price change or deflation, then the COLA is set to 0.0 percent.

rough simulation of the stream of SS payments under two alternative “real-time” COLA regimes (monthly and quarterly COLAs). These real-time COLAs are derived and implemented not on a once-a-year basis, but on a monthly and quarterly basis in periods as close as possible to the period in which price level changes occur. We then compare the results of these real-time COLAs with the actual stream of payments that were extended to SS recipients during 2021.

The following are the methods used to compute real-time COLAs and estimate Social Security (retirement) Benefits (SSBs):

- Given that CPIs for a particular month or quarter are only available in the month or quarter following the period in question and that the US Congress has mandated that not seasonally adjusted CPIs be used to compute COLAs, monthly and quarter COLAs percentages (COLAPs) are computed as follows:
 - Monthly percentages for month t, $COLAP_{mt} = (((CPI_{mt-2}/CPI_{mt-14})^{(1/12)}) - 1)$.
 - Quarterly percentages for quarter t, $COLAP_{qt} = ((CPI_{qt-2}/CPI_{qt-6})^{(1/4)}) - 1$.
- Total SSBs based on a monthly COLA regime are estimated as follows:
 - $SSB_{mt} = [(SSB_{mt-1} * (1 + COLAP_{mt})) + (NNSSB_{mt} * (1 + COLAP_{mt}))]$; where NNSSB stands for net new SSB. NNSSB, which represents SSBs paid to new enrollees less reduction in SSBs paid due to de-enrollments caused by deaths or otherwise. NNSSBs are computed as follows:

- $NNSSB_{mt} = [(SSA_{SSB_{mt}} - SSB_{mt-1}) * (1 - SSA_{Annual COLA_{yt}})]$; where “SSA” means Social Security Administration and “y” is for year.
- Total SSBs based on a quarterly COLA regime are estimated as follows:
 - Month one of each quarter: $SSB_{qtm1} = [(SSB_{mt-1} * (1 + COLAP_{qt})) + (NNSSB_{mt} * (1 + COLAP_{qt}))]$
 - Month two of each quarter: $SSB_{qtm2} = [(SSB_{qtm1} + (NNSSB_{mt} * (1 + COLAP_{qt}))]$.
 - Month three of each quarter: $SSB_{qtm3} = [(SSB_{qtm2} + (NNSSB_{mt} * (1 + COLAP_{qt}))]$.

Table 1 (next page) shows the stream of SSB payments actually received during the months of 2021 (column A) under the current annual COLA regime and rough estimates of what would have been received under monthly (column B) or quarterly (column C) real-time COLA regimes. Columns D and E compare columns B and C, respectively, with column A.

Table 1 presents rough estimates. However, there are clear differences between the three COLA regimes: The monthly regime would pay the most, and even the quarterly regime would pay more than the current annual COLA regime. Importantly, the differences are not dramatically large. The estimated \$6.1 billion in additional benefits that would have been paid under the monthly COLA regime would amount to about \$100 in additional annual benefits for each SS recipient. The estimated \$2.4 billion in additional benefits that would have been paid under the quarterly COLA regime would amount to about \$50 in additional annual benefits for each SS beneficiary.

Table 1.—SSBs under Current and Real-Time COLA Regimes: 2021
(Millions of US dollars)

Line No.	Period	(A)	(B)	(C)	(D) Difference (B-A)	(E) Difference (C-A)
		Actual Annual COLA: SS Retirement Benefits	Estimated Monthly COLA: SS Retirement Benefits	Estimated Quarterly COLA: SS Retirement Benefits		
1	Dec-21	\$84,217	\$86,763	\$85,572	\$2,546	\$1,355
2	Nov-21	\$84,050	\$86,119	\$85,405	\$2,069	\$1,355
3	Oct-21	\$83,780	\$85,439	\$85,135	\$1,659	\$1,355
4	Sep-21	\$83,618	\$84,877	\$83,845	\$1,259	\$227
5	Aug-21	\$83,490	\$84,340	\$83,718	\$850	\$228
6	Jul-21	\$83,338	\$83,773	\$83,567	\$435	\$229
7	Jun-21	\$83,278	\$83,331	\$83,060	\$53	-\$218
8	May-21	\$83,080	\$82,818	\$82,864	-\$262	-\$216
9	Apr-21	\$82,863	\$82,399	\$82,649	-\$464	-\$214
10	Mar-21	\$82,644	\$82,051	\$82,161	-\$593	-\$483
11	Feb-21	\$82,534	\$81,836	\$81,946	-\$698	-\$588
12	Jan-21	\$82,348	\$81,554	\$81,729	-\$794	-\$619
13	Dec-20	\$81,360	\$81,360	\$81,360		
14	2021 Total	\$999,240	\$1,005,301	\$1,001,652	\$6,061	\$2,412

Sources: SSA³; BLS⁴; BlackEconomics.org computations and presentation.

Observing the pattern of differences for both the monthly and quarterly COLA regimes in columns D and E of Table 1, respectively, it is clear that the amounts received early in the year are less than those received under the current annual COLA regime. This is because, under the current regime, SS recipients receive the annual COLA at the beginning of the year. Also, inflation was muted over the period from which the monthly and quarterly COLAs were calculated for the first half of the year. Conversely, for the second half of the year, inflation ticked up during the period from which the monthly and quarterly COLAs were calculated. Accordingly, the difference

between benefits that would have been received under the monthly and quarterly COLA regimes during the second half of the year exceed benefits actually received under the current annual COLA regime.

This Analysis Brief shows that the type of COLA regime employed makes a difference. While the benefits under the current, monthly, and quarterly COLA regimes are clearly different for 2021, differences in SS benefits under the differing regimes for past or future periods could be larger or smaller depending on the pattern of inflation during the periods from which the COLAs are computed.

B Robinson
(081222)
--

³ Social Security retirement benefit statistics used in this Analysis brief are available [here](#) (Ret. 080322).

⁴ CPI statistics are available from the US Department of Labor, Bureau of Labor Statistics [here](#) (Ret. 080222)