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Comparing the US financing sources during World wars and pandemics (Spanish flu vs. COVID-19)

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ABSTRACT

Our Letter centres around George J. Hall's and Thomas Sargent's article 'Three world wars: fiscal-monetary consequences' published in the *Proceedings of the National Academy of Sciences of the United States of America* (PNAS) in 2022 and representing a study of the US financing sources spanning over a century. We expand the analysis of the US financing sources (taxes, bonds, money) to combat the world wars and COVID-19 by adding another crisis, namely the Spanish flu (1918–1920). We assess the fiscal-monetary comparability of wars and pandemics and investigate whether the finding that taxation was less used to combat COVID-19 (as compared to WWI/WWII) applies to a comparable disease. By replicating their methodology, we reconstruct the US financing sources to combat the Spanish flu and conclude that this pandemic was financed more similarly to WWI/WWII than to COVID-19. While our findings reconfirm – COVID-19 is an exception both when compared to WWI/WWII and to the Spanish flu –, we provide explanations for this different mix of financing sources. Future research could investigate whether the 'war on COVID-19' followed by that one in Ukraine might re-create overlapping crises as for WWI and the Spanish flu.

KEYWORDS

COVID-19 pandemic; financing sources; Spanish flu; United States; World wars

JEL CLASSIFICATION

E52; E63; N11; N12

I. Introduction

Hall and Sargent (2022) recently analysed the US financing sources (taxes, bonds, money) to combat 'three world wars' including that on COVID-19. Their study reconstructed and analysed US Federal Government data on expenditures, revenues, interest-bearing debt and Federal Reserve balance sheets from 1900 to 2021 with the aim of assessing how periods of exceptional spending such as WW I and II or SARS-CoV-2 have been financed by the US budget. The major conclusion consisted in the 'striking[ly]' little use of taxation (3.5%) during SARS-CoV-2 compared to WWI (20.8%) and WWII (30.2%). This clearly raises the question of the legacy of the recent pandemic in terms of budgetary burden.

We investigate whether this result could be ascribed to the fact that economic wartime policies might be different than those of pandemics. To overcome the assumption that wars and pandemics are only limitedly comparable in terms of economic policies we analyse Hall and Sargent's



(2022) relevant conclusion by adding the case of the Spanish flu to their analysis. This is a relevant case study as the Spanish flu because of has been:

- (1) a major crisis episode on a worldwide scale;
- (2) limited in time (March 1918 – April 1920) rather than a disease stretching over decades;
- (3) particularly close in time to WWI (1917–1918) analysed by Hall and Sargent (2022)?

While the Letter exalts the far-reaching, value-adding findings of Hall and Sargent (2022), it aims expanding the terms of comparison obtaining original empirical results on the different combination of US financing sources over time.

II. Materials and methods

The Letter does not estimate causation but examines historical events using descriptive statistics. We have replicated Hall and Sargent's (2022) approach by integrating the results for two wars

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(WWI, WWII) and a pandemic (COVID-19) with a second disease episode (Spanish flu). Hence, by comparing the strikingly little use of taxation to combat COVID-19 with the Spanish flu, we conclude that the anomaly retrieved by Hall and Sargent's (2022) for COVID-19 applies not only to WWI and WWII but also to the Spanish flu. This conclusion is particularly significant, because the Spanish flu notably belongs to the same category of crises ('pandemics') like COVID-19. Moreover, the Letter adapts and merges Hall and Sargent's (2022) Fig. 2 and 3 and argues that the bulk of US public expenditures between 1918 and 1919 could be also due to the Spanish flu (which was at its peak) and not only to WWI (which was over).

Finally, our research provides further explanations – among others, the political governance and the attitude towards debt with low interest rates – why the COVID-19 pandemic was (so far) almost entirely not financed with taxes.

III. Results

Tax revenues soared during wars as they were perceived as a patriotic effort (Yared 2010). Moreover, while in WWI and WWII real GDP (Y) grew sustainably (1917–1918: +9.0%; 1941–1945: +48.7%), during COVID-19 it did not

(2019–2021: +2.1% (Federal Reserve Bank of St Louis 2023)). Additional taxation (T) would have exacerbated recessionary pressures and reduced the net disposable income ($Y - T$). In fact, as stated by Draghi (2021) on the 'war on COVID-19', '[i]t is not the time to take money from citizens but to give it'.

We counter-analyse Hall and Sargent's (2022) results by adding the crisis episode of the Spanish flu (1918–1920) characterized by declining real GDP (-0.1%). Table 1 shows the results:

- (1) for the Spanish flu the Government paid for its outlays with taxes (34.2%), interest-bearing debt (54.3%), money growth (7.7%) and remaining terms (3.8%);
- (2) debt represented the preferred financing source in all four 'wars' despite their different nature (wars vs. pandemics);
- (3) taxation during the Spanish flu was used significantly more than for COVID-19, which confirms the aforementioned anomaly retrieved by Hall and Sargent (2022).

Hall and Sargent (2022) rightly claim that 'outlays spiked during World War I, World War II, and COVID-19'. However, in the light of this new evidence, we argue that the Spanish flu might have substantially contributed to the peak of expenditures of the US Government. In 1919, when public

Table 1. Decomposition of revenues from Hall's and Sargent's equation 2.

Start to end (US entry to-)	1 Government spending	2 Payouts on net debt	3 Asset purchases	4 1 + 2 + 3	5 Tax revenue	6 Debt growth	7 Money growth	8 GDP growth	9 Inflation	10 Other
Spanish flu										
1918:4 to 1920:4	39.72	-52	-	39.20	13.40 34.2	21.27 54.3	3.03 7.7	-18 -5	4.42 11.3	-2.73 -7.0
World War I										
1914:7 to 1918:11 (1917:4 -)	36.11	.43	.39	36.92	6.83 18.5	26.76 72.5	3.41 9.1	.48 1.3	1.12 3.0	-0.67 -4.5
	36.93	.30	.16	37.39	7.76 20.8	27.79 74.3	2.59 6.9	.03 .1	0.68 1.8	-1.46 -3.9
World War II										
1939:9 to 1945:8 (1941:12 -)	129.50	.10	-	129.60	49.91 38.5	54.78 42.3	11.32 8.7	15.42 11.9	9.62 7.4	-11.45 -8.8
	116.48	2.00	-	118.48	35.80 30.2	54.53 46.0	11.96 10.1	8.99 7.6	6.05 5.1	1.14 1.0
COVID-19										
2020:1 to 2021:12 reserves \subset M	21.37	.22	5.85	27.45	0.95 3.5	-0.59 -2.2	25.16 91.7	1.02 3.7	3.03 11.0	-2.12 -7.7
2020:1 to 2021:12 reserves \subset B	21.37	.17	5.85	27.40	0.95 3.5	18.36 67.0	5.07 18.5	1.48 5.4	3.99 14.6	-2.45 -8.9

All non-shadowed lines are from Hall's and Sargent's Table 2. Equally, for each crisis episode, the elements in the first row are in percentage of GDP while column 5 to 10 sum to column 4. The numbers in italic in the second row are percentages of the sum of expenditures referable to each crisis episode, net debt payments, and purchases of private assets (column 4) accounted for by each term on the right side of Eq. 2 as calculated in Hall and Sargent (2022). Column 10 represents the sum of other means of financing, the cross-product, and a residual.

outlays reached 22.6%, WWI was over, but the Spanish flu was not. As soon as the pandemic vanished in April 1920 (The New York Times 1920), net ordinary expenditures rapidly decreased too. This shines particularly through after replicating Hall and Sargent's (2022) Fig. 2 and 3 and focusing on the first year before WWI and the Spanish flu (1913, 1917) and the first year after these crisis episodes (1919, 1921) as Figure 1 does.

Moreover, while a significant share of expenditures was imputable to military/civil establishments (U.S. Department of the Treasury 1918, 1919, 1920), the Spanish flu mostly 'travelled with military personnel' (Byerly 2010) and from 6 April 1917, to 1 July 1919, 50% of deaths (57,640) in the US Army/Marines were due to diseases (Ayres 1919). Therefore, the Spanish flu fuelled expenditures too.

IV. Discussion and conclusion

Adding the case of the Spanish flu to the study of Hall and Sargent, we confirm the exceptional nature of COVID-19 in terms of US financing sources (as percentages of total revenues):

(1) Spanish flu: 34.2 (taxes); 54.3 (bonds); 7.7 (money);

(2) WWI: 20.8 (taxes); 74.6 (bonds); 7.0 (money);
 (3) WWII: 30.2 (taxes); 46.0 (bonds); 10.1 (money);
 (4) COVID-19: 3.5 (taxes); 67.0 (bonds); 18.5 (money).

'Softer' factors might have also influenced the US financing sources. In WWI/WWII US Presidents Wilson (1913–1921) and Roosevelt (1933–1945) remained for the entire period while COVID-19 occurred towards the end of Trump's mandate (2017–2021). While Governments tend to raise taxes at the beginning of their mandates (Berry and Berry 1994), the first two were Democrats and the third a Republican implying an additional, 'physiological' resistance against taxation (Kornhauser 2014). Moreover, the attitude towards debt at times of ultra-low interest rates was more benign (Blanchard 2019).

These results are relevant for policymakers because they leave open the question of the legacy of the COVID-19 pandemic in terms of debt burden. The exceptionally high share of bonds and money financing used during the pandemic are certainly a cause of the subsequent increase of inflation and certainly limit the 'room for manoeuvre' that policymakers have following such shock.

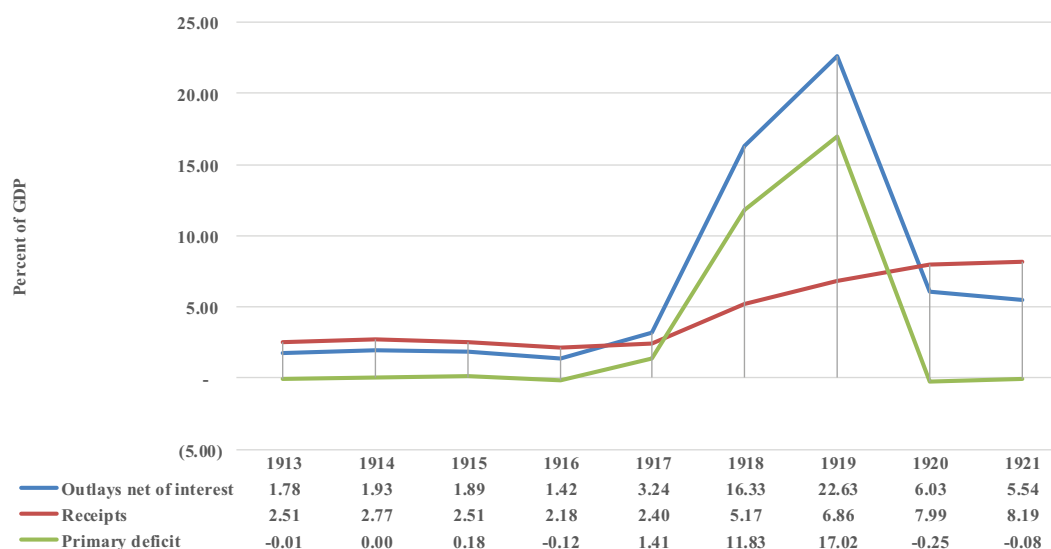


Figure 1. Own elaboration based on Hall and Sargent (2022) with 'outlays net of interest' corresponding to 'net ordinary expenditures', 'receipts' to 'total ordinary and postal receipts' and 'primary deficit' to the difference between 'total ordinary and postal expenditures' and 'gross receipts (incl. postal)'.

In a comparative perspective, it has to be stressed that after WWII the US Dollar became ‘the’ undisputed reserve currency, the US also acquired the ability to increase its money supply ‘free of cost’. Clearly, this ‘right’ does not pertain to countries not belonging to the ‘club’ of reserve currency issuers. It will be up to future research to investigate whether the ‘war on COVID-19’ followed by that one in Ukraine might re-create a situation of overlapping crises as for WWI and the Spanish flu and whether the inheritance of these shocks in terms of debt burden will be sustainable also for non-reserve currency issuers.

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