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COVID-INDUCED PRECAUTIONARY SAVING IN THE US: THE ROLE OF THE UNEMPLOYMENT RATE

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The last few months have seen an unprecedented rise in the US saving rate. Most of the accumulated saving was undoubtedly generated by the social distancing and lockdown measures imposed by the government; however, part of it may also have been driven by precautionary motives due to grim labour prospects. Some back-of-the-envelope calculations show that the dynamics of the unemployment rate alone can trigger a large increase in (precautionary) saving for this year, raising the prospect of a new saving glut.

The economic effects of the COVID-19 outbreak have become manifest in official data. In the US, GDP contracted at an annual rate of 5 per cent in Q1, with service consumption contributing the most to the contraction. Since February, employment has fallen by roughly 15 million units with the unemployment rate settling at nearly 15 per cent in April, before declining to 13.3 per cent and 11.1 per cent in May and June, respectively.[2] In April, the saving rate rose by 20.3 percentage points (to 33 per cent), the largest monthly increase since the 1960s (Figure 1). In May, it retreated to a still high 22.3 per cent.[3]

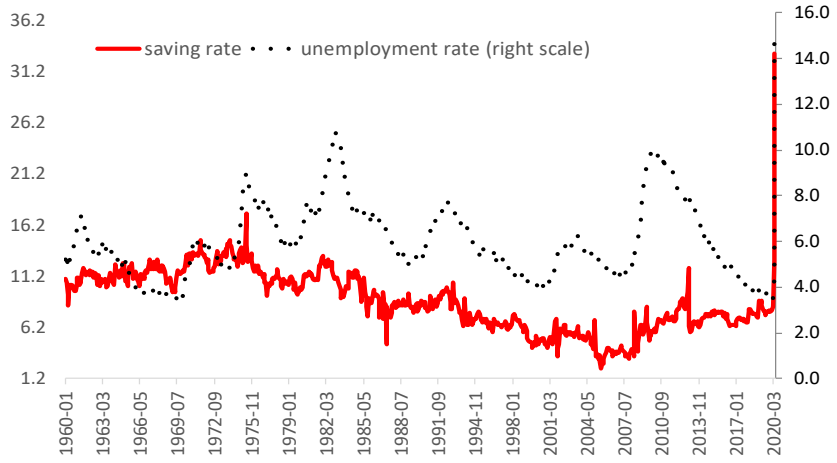

***Figure 1**: Saving rate and unemployment rate (monthly frequency, US). Source: Bureau of Economic Analysis and Bureau of Labor Services*

[1] Bank of Italy. A synthetic version of this note appears in Econbrowser. The views expressed herein represent those of the authors and do not necessarily reflect those of the Bank of Italy. I would like to thank Pietro Catte and Andrea Finicelli for their useful comments and suggestions.

[2] Official statistics may underestimate the true unemployment rate by as much as 1 to 3 percentage points, as reported by the Bureau of Labor Service. Furthermore, Hamilton (2020) shows, through some back-of-the-envelope calculations, that the actual unemployment rate in May could have reached almost 20 per cent.

[3] Personal saving skyrocketed, almost tripling from February (roughly $1,400 billion) to May ($4,100 billion).

Most of the accumulated saving was undoubtedly generated by the social distancing and lockdown measures imposed by the government during the emergency, which significantly curtailed households' ability to spend. However, it could also have been partly driven by precautionary motives, related to both medical and economic concerns, and even after the economy reopens and the effect of the lockdown on the savings rate wanes, those other factors may well continue to be important drivers. On the health front, the virus may not disappear until a vaccine has been developed, produced and distributed on a large scale; indeed, recent studies show that the pandemic could last between 18 and 24 months, because the virus won't be halted until about 60-70 per cent of the population is immune (Barry et al., 2020 and Beaumont, 2020). If this is the case, fear of contracting COVID-19 may continue to drive people's behaviour, even in the post-emergency phase.[4] Hence, demand for physical-proximity services will be subdued and, in some extreme cases, may not resume completely (e.g. in tourism-related or in transport sectors). At the same time, the supply side will likely remain an issue: in order to curb the probability of new outbreaks, the government is imposing on businesses some forms of social distancing that, while looser than during the emergency, will inevitably constrain their ability to produce and deliver goods and services.[5] All of this increases the likelihood of business defaults or resizing, amplifying the risk of income losses or layoffs. The reaction of households could therefore be to increase precautionary saving (see, among others, Hugget, 1993 and Carroll et al., 2012).

The uncertainty perceived by households is huge and labour prospects are grim. A survey on US households, conducted at the end of March, reveals that the average expected GDP loss in the next 12 months (roughly 7 per cent) was surrounded by deep uncertainty, with answers spanning from +1 to -15 per cent (Dietrich et al., 2020). As for the labour market, researchers and private forecasters suggested that the unemployment rate could peak above 30 per cent at some point during the year (Faria and Castro, 2020 and Egan, 2020). Barrero et al., (2020) look at COVID-19 as a 'reallocation' labour shock and conclude that almost half of the recent layoffs will be permanent. This is consistent with the results of Gascon (2020) and Coibion et al., (2020): the former showed that at the beginning of the emergency 46 per cent of total US workers were at high risk of layoff; the latter reports that expectations about the level of unemployment have increased not only for the short term, but also over a medium-term horizon (three to five years).

The unemployment rate has been shown to be a crucial driver of precautionary saving, on both theoretical and empirical grounds. Mody et al., (2012) develop a simple model based on Carroll et al., (2012) and use its implications to estimate a single equation for a panel of 27 advanced countries at yearly frequency. They regress the saving rate on the unemployment rate – taken as a proxy for labour income uncertainty – and a number of other determinants of savings, including one-year ahead disposable income to capture 'first-moment effects' stemming from changes in economic

[4] Voitgländer and Voth (2012) and Aassve et al., (2020) show that during past pandemics, such as the Black Death and the Spanish flu, the fear of contracting influenza dramatically altered social interactions, leading to long-term social disruption.

[5] In practice, while exiting from the emergency, several US states, including Florida, Texas, New York and California, are imposing some lighter forms of social distancing on businesses characterized by physical proximity (see CNN, 2020).

activity.[6] In the baseline specification, the authors estimate that a 1 percentage point (pp) increase in unemployment raises the saving rate by 0.3 pp.

While we know that a careful analysis on precautionary saving would need household-level data (see, for example, Attanasio and Weber, 1993), we use the above mentioned results to perform some back-of-the-envelope calculations of the effects of the unemployment rate on the average US saving rate in 2020, due to precautionary motives (Table 1). We present three scenarios, based on alternative assumptions about the increase in US unemployment during the year. The most conservative one is an increase to 10 per cent, in line with the projections in IMF (2020) and JP Morgan (2020).[7] The worst-case scenario assumes an increase to 20 per cent, more in line with the projection in Petrosky-Nadeu et al., (2020). We take an intermediate of 15 per cent as our benchmark. Using the coefficient estimated by Mody et al., (2012), i.e. 0.3, in the intermediate scenario the saving rate would increase by 3.4 pp, which would represent the largest yearly surge since the 1960s.[8] Indeed, so far, the largest increase occurred in 1970 and amounted to 1.9 pp.

Applying the same back-of-the-envelope calculation, the observed rise in unemployment during the Great Recession (3.5 pp between 2008 and 2009) would have predicted an increase of the saving rate in 2009 of 1 pp; although other factors have clearly been at play, this prediction is strikingly close to the observed increase (1.1 pp).

	unemployment rate in 2020 (%)		
	10	15	20
variation of the saving rate in 2020 (pp) (Moody et al., 2012)	1.9	3.4	4.9
variation of the saving rate in 2020 (pp) (Muellbauer, 2020)	1.6	2.9	4.1

***Table 1**: Precautionary saving and unemployment rate in the US. Notes: the table reports the back-of-the-envelope calculations using Mody et al., (2012) and Muellbauer (2020).*

The flip side of a saving expansion is a fall in consumption. Muellbauer (2020) estimates an augmented-consumption function for the US that includes the unemployment rate among the regressors, finding that a 1 pp increase in unemployment in a quarter generates a fall in consumption of roughly 0.5 per cent in the same quarter.[9] Back-of-the-envelope calculations, which convert quarterly changes into yearly ones, show that that the intermediate scenario in Table 1 is associated with a fall in consumption of roughly 3 per cent. The implied increase in the saving rate of such a

[6] The other regressors are the real deposit interest rate, household wealth-to-disposable income lagged one year, and GDP and stock market volatility.
[7] This figure refers to the average unemployment rate observed in 2020.
[8] The back-of-the-envelope calculation is very simple and, in the intermediate scenario, multiplies the coefficient, 0.3, by the jump in the unemployment rate projected for this year, i.e., the difference between 15 and 3.7 per cent. We recall that 3.7 per cent is the recorded unemployment rate for 2019. Since the coefficient under scrutiny is an average effect among the countries included in the panel, it offers a raw approximation for each single country.
[9] The estimated equation, using quarterly data, is characterized by consumption in logs as dependent variable and, among other regressors, by the first-difference of the unemployment rate and the lagged dependent variable whose coefficient amounts to 0.6.

fall in consumption, holding income constant, is roughly 2.9 pp, very close to the figure obtained by Mody et al., (2012).

It is important to note that the proposed figures depict only part of the full story; we know that saving is driven by a number of factors such as income, wealth and interest rate dynamics (see, among others, Dynan, 2008 and Mody et al., 2012). In addition to economic uncertainty, also uncertainty about risks to public health (the possibility of a second wave of contagion) could drive precautionary saving. And, as recalled above, the extension of the social distancing measures will affect consumption/saving as well. These factors may persist for some time after the end of the lockdown. As a result, a new saving glut could emerge globally to the extent that the saving dynamics observed and anticipated for the US is not a *unicum*. For example, in Q1, the saving rate of the euro area rose to almost 17 per cent, from 12.7 per cent in the previous quarter, the largest quarterly increase since the beginning of the series in 1999. As conjectured by Blanchard (2020) and Goy (2020) such a surge in (precautionary) saving could be long-lasting, potentially reinforcing some existing tendencies, such as persistently low levels of inflation and of the equilibrium interest rate.

Bibliography

Aassve A., G Alfani, F. Gandolfi and M. Le Moglie (2020), 'Epidemics and Trust: The Case of the Spanish Flu', Working Papers 661, IGIER (Innocenzo Gasparini Institute for Economic Research), Bocconi University.

Arnold and Storbeck (2020), 'European consumers stockpile savings, adding to economic drag', Financial Times, 25 May.

Attanasio, O., and Weber, G. (1993), 'Consumption growth, the interest rate and aggregation', *The Review of Economic Studies*, 60(3).

Barrero J., N. Bloom, and S. Davis (2020), 'COVID-19 Is Also a Reallocation Shock', Becker Friedman Institute, WP 2020-59.

Barry J., M. Lipsitch, K. Moore and M. Osterholm (2020), 'The Future of the COVID-19 Pandemic: Lessons Learned from Pandemic Influenza', Center for Infectious Disease Research and Policy (CIDRAP).

Beaumont P. (2020), 'Will there be a second wave of coronavirus?', The Guardian, 20 April.

Blanchard O. (2020), 'Is there deflation or inflation in our future?', VoxEu column, 24 April.

Carroll, C., J. Slacalek and M. Sommer (2012), 'Dissecting saving dynamics: Measuring wealth, precautionary, and credit effects,' CFS Working Paper Series 2012/10, Center for Financial Studies (CFS).

Coibion O., Y. Gorodnichenko, and M. Weber, 'The cost of the COVID-19 crisis', VoxEu column, 12 May.

CNN (2020), 'This is where each state is during its phased reopening', updated May 27.

Dietrich, Kuester, Müller and Schoenle (2020), 'News and uncertainty about COVID-19: Survey Evidence and short-run economic impact', 24 March.

Dynan, K. (2008), 'The Financial Crisis and Personal Saving', Brooking Institution, October 28.

Egan, M. (2020), 'Goldman Sachs issues warning about US unemployment', CNN Business, 13 May.

Faria and Castro M. (2020), 'Back-of-the-envelope estimates of next quarter's US unemployment rate', VoxEu column, 20 April.

Goy G. and J. End (2020), 'The impact of the COVID-19 crisis on the equilibrium interest rate', VoxEu column, 20 April.

Gascon C. (2020), 'COVID-19: Which Workers Face the Highest Unemployment Risk?', On the economic blog, Federal Reserve bank of St. Louis.

JP Morgan (2020), 'Global Data Watch', April 2020.

Hamilton J. (2020), 'Interpreting the unemployment numbers', Econbrowser, 7 June.

Huggett, M. (1993), 'The risk-free rate in heterogeneous-agent incomplete-insurance economies,' *Journal of Economic Dynamics and Control*, 17(5-6).

IMF (2020), 'World Economic Outlook, April 2020: The Great Lockdown', April 2020.

Mody, A., F. Ohnsorge, and D. Sandri (2012), 'Precautionary savings in the Great Recession', *IMF Economic Review*, 60(1).

Muellbauer J. (2020), 'The coronavirus pandemic and US consumption', VoxEu column, 11 April.

Petrosky-Nadeau N. and R. Valletta (2020), 'Unemployment Paths in a Pandemic Economy', Federal Reserve Bank of San Francisco, WP 2020-18.

Voigtländer N. and H. Voth (2012), 'Persecution Perpetuated: The Medieval Origins of Anti-Semitic Violence in Nazi Germany,' *The Quarterly Journal of Economics*, 127(3).