Private consumption and savings during the COVID-19 pandemic in Austria

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Refereed by: Tobias Schmidt and Alexander Erler, Deutsche Bundesbank

The economic disruptions caused by the COVID-19 pandemic have driven up household savings in Austria to unprecedented levels. We quantify the excess household savings accumulated so far during the pandemic (Q1 20 to Q2 21) at EUR 10.8 billion relative to a counterfactual scenario without the pandemic. In this paper, we perform three decompositions of Austrian households' excess savings. The decomposition by source reveals that a drop in the consumption of services fueled savings despite a strong fall in property income. The decomposition by allocation shows that in 2020 excess savings were mainly used to accumulate currency and deposits. This development reversed in the first half of 2021. The decomposition by saving motives employs econometric models for the savings ratio. It shows that traditional determinants behind saving motives cannot explain the observed sharp increase in savings. We therefore conclude that in the observation period, savings were driven by forced savings. These forced savings come to between EUR 17 billion and EUR 23 billion, depending on the model specification used. Based on our results and a literature survey, we expect that households' marginal propensity to save out of current income will quickly return to pre-crisis levels but that the scope for satisfying pent-up demand out of accumulated excess savings will remain limited.

JEL: classification: E21, E32, E37
Keywords: COVID-19, excess savings, pent-up demand

The COVID-19 pandemic and the measures taken to contain the spreading of the coronavirus have led to an unprecedented disruption of economic activity around the globe. The contraction of real GDP recorded in 2020 was the strongest in Austria's post-war history, for instance. The pandemic-related lockdown measures in Austria had a massive impact especially on private consumption, which dropped by 8.5% in the first year of the pandemic. The fall in disposable household income was attenuated by massive government support. Consequently, net household savings increased from EUR 19.0 billion in 2019 to EUR 32.1 billion in 2020 and remained elevated in the first half of 2021. We define "excess savings" as the amount of savings accumulated relative to a scenario without the COVID-19 pandemic. With regard to these excess savings, we address four major questions: First, what is the amount of excess savings accumulated during the pandemic relative to a counterfactual scenario without the pandemic? Second, what are the drivers of excess savings? Third, how are excess savings allocated and what are the underlying motives? To answer questions two and three, we decompose excess savings along different dimensions. Finally, the fourth question we discuss is: What are the implications of the observed excess savings for future pent-up demand and GDP growth in Austria?

This article is structured as follows: In section 1, we take a detailed look at the development of household income and household consumption in Austria during the pandemic. In section 2, we perform the above-mentioned decompositions. In

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section 3, we discuss the implications for future consumption and saving patterns in Austria and their potential effect on GDP.

1 Household income and consumption during the pandemic

On March 16, 2020, Austria entered its first pandemic-related lockdown. The imposed containment measures during the first stage of the lockdown included, most prominently, mobility restrictions and the closure of nonessential businesses – which meant, essentially, all businesses except for food or tobacco stores and pharmacies. Although the first lockdown only affected two weeks of the first quarter of 2020, economic activity in Austria dropped by 2.5% in Q1 20 against the previous quarter. The savings ratio increased slightly, driven by a drop in consumption (table 1).

Throughout the second quarter of 2020, several sectors of the Austrian economy remained closed and the fear of infection led to voluntary mobility restrictions that put a further drag on economic activity. Real output shrank by 11.5% compared to the first quarter of 2020, marking the strongest economic contraction in Austrian post-war history. Disposable household income dropped by EUR 5.5 billion and private consumption by EUR 6.1 billion, contributing to a further rise in the savings ratio to 13%. Due to massive government support measures, most prominently the short-time work scheme, households' purchasing power was backed while opportunities to consume – especially to consume contact-intensive services – were still heavily restricted.

As the lockdown measures were gradually lifted, the economy experienced a sharp recovery in the third quarter of 2020. Strengthend by both the economic upturn and continued government support, Austrian households' disposable income grew by EUR 7.2 billion while consumption fell short of a full recovery, partly due to traveling restrictions and travel warnings that were in place during the summer of 2020. As a result, the quarter-on-quarter growth in net savings accelerated further to EUR 1.5 billion.

A second wave of COVID-19 infections after the summer led to the next lockdown in Austria by early November 2020. Still backed by huge government support, disposable household income continued to expand while consumption declined in the fourth quarter as nonessential businesses were closed down again. These developments drove households' net savings further up, causing the (net) savings ratio to peak at nearly 20% in Q4 20.

Apart from a temporary lifting of measures before Christmas 2020, the lockdown in Austria went on until early February 2021, resulting in a further drop in real GDP by 0.5% in the first quarter of 2021. Household income fell by EUR 5.8 billion, which caused the savings ratio to drop to 11.1%. In the second quarter of 2021, the Austrian economy recovered strongly. Disposable household income and household consumption recovered only partially, however. The savings ratio increased somewhat, to 11.4%.

The pandemic-related containment measures and voluntary social distancing considerably affected the pattern of private consumption. The decline in private consumption in Austria was largest for close-contact services involving crowds of people, i.e. those sectors that were intentionally targeted by the containment measures. In current prices, final consumption expenditure shrank by 8.1% in 2020 (table 2). Expenditure on restaurant visits, hotels and package holidays

Table 1

Economic development during the COVID-19 pandemic in Austria

	Q1 20	Q2 20	Q3 20	Q4 20	Q1 21	Q2 21	2019	2020
GDP, real[1]	–2.5	–11.5	11.0	–2.0	–0.5	4.0	1.5	–6.8
HICP inflation (change to previous year in %)	2.0	1.1	1.4	1.1	1.5	2.6	1.5	1.4
Unemployment rate (Eurostat), %	4.6	7.0	6.5	6.5	7.0	6.7	4.8	6.1
	Difference to previous period in EUR billion						*EUR billion*	
Net disposable household income	–0.9	–5.5	7.2	1.4	–5.8	1.6	222.3	220.8
Private consumption	–1.5	–6.1	5.7	–2.2	–0.1	1.3	204.8	190.1
Net savings	0.5	0.7	1.5	3.7	–5.8	0.3	19.0	32.1
	% of household disposable income							
Net savings ratio	10.6	13.0	13.9	19.8	11.1	11.4	8.5	14.3

Source: Statistics Austria, Eurostat, OeNB calculations.

[1] Change to previous period in %. Based on seasonally and working day-unadjusted data, GDP growth in 2020 was 6.7%.

Note: All data are seasonally and working day adjusted and, except for GDP, HICP and the unemployment rate, given in current prices.

Table 2

Final consumption expenditure by purpose

	2020	Growth in 2020			Share in 2019
	EUR billion	*EUR billion*	%	*Contribution in percentage points*	%
Restaurants, hotels, package holidays	20.8	–9.7	–31.8	–4.7	14.9
Transport	20.4	–4.5	–17.9	–2.2	12.2
Recreational and cultural services	5.7	–2.6	–31.2	–1.3	4.0
Clothing and footwear	9.1	–2.4	–20.7	–1.2	5.6
Other close-contact services	5.3	–0.5	–8.5	–0.2	2.8
Health and education	9.5	–0.4	–3.7	–0.2	4.8
Other goods	12.4	–0.2	–1.8	–0.1	6.2
Other services	16.0	–0.03	–0.2	–0.02	7.8
Food, beverages, housing and related goods	89.1	3.5	4.1	1.7	41.8
Total	188.2	–16.6	–8.1	–8.1	100.0

Source: Eurostat, OeNB calculations.

Note: Consumption at current prices. The following COICOP 2- and 3-digit headers have been aggregated: transport (CP07), restaurants, hotels, package holidays (CP11, CP096), recreational and cultural services (CP094), food, beverages, housing and related goods (CP01, CP02, CP04, CP05), health and education (CP06, CP10), other close-contact services (CP081, CP121), other services (CP083, CP124-126, CP122, CP127), clothing and footwear (CP03), other goods (CP082, CP091-093, CP095, CP123).

accounted for more than half of this decline (–4.7 percentage points). The second largest contributor was the consumption of transport goods and services (–2.2 percentage points). Another –1.3 percentage points were accounted for by expenditure on recreational and/or cultural activities as well as clothing and footwear. Even though recreational and cultural activities were among the industries most affected by the containment measures, their share in total consumption is small by comparison (4%). By contrast, the brick-and-mortar distribution channel of the clothing and footwear industry was only affected during the strictest lockdown stages, and the online and click-and-collect channel was available during most of 2020. The strong decline in expenditure on clothing and footwear may be due to social distancing, the decrease in mobility and the increasing numbers of

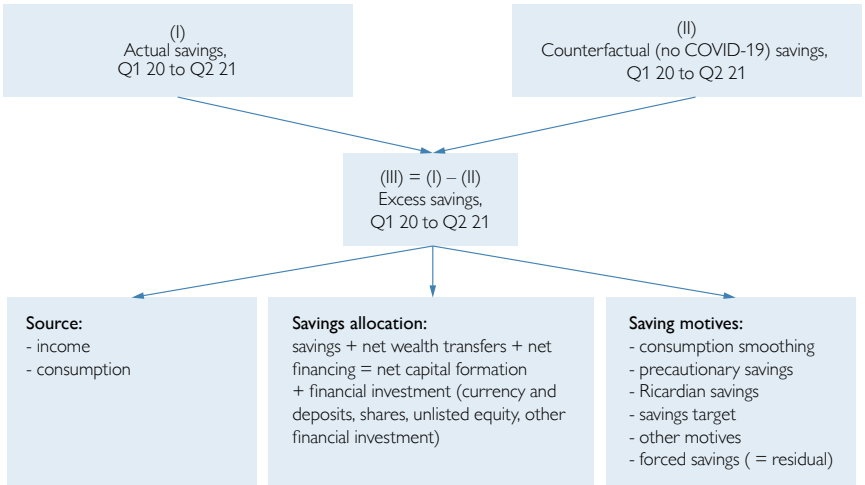
people working from home. Fewer opportunities to wear new items of apparel may have dampened demand.[2] At the other end of the spectrum, the consumption of necessities like food, water, electricity and housing but also home furnishing products such as furniture and household appliances grew by 4.1%. Given their large share in total consumption of 41.8%, these products and services contributed 1.7 percentage points to the percentage change in total consumption.

2 Excess savings during the pandemic

In this section, we will take a detailed look at the additional or "excess" (as opposed to "normal") savings that Austrian households accumulated during the pandemic (Q1 20 to Q2 21). Figure 1 presents an overview of our methodological framework. We start by decomposing actual (recorded) savings into "normal" savings, i.e. savings that would have been expected in a counterfactual scenario without the COVID19 pandemic, and "excess" savings, i.e. the difference between actual savings and "normal" savings. The construction of the counterfactual scenario is explained in annex 1. We then decompose excess savings from three different perspectives. First, we look at the sources of excess savings, i.e. the contribution of changes in income and consumption. Second, we analyze how households allocated their funds (savings plus capital transfers plus financing) to real and financial assets. Third, we examine the motives behind the increase in savings. We do so by estimating various econometric specifications for a savings ratio model.

Figure 1

Methodological framework



Source: Authors' compilation.

[2] *Moreover, some items of clothing and footwear are seasonal fashion products, which have shorter life cycles. Consumers thus may have postponed the consumption of such goods until the uncertainty about further strict lockdowns decreased sufficiently.*

2.1 Excess savings in Austria came to EUR 10.8 billion during the pandemic

Savings accumulated by Austrian households during the pandemic between Q1 20 and Q2 21 amounted to EUR 44.2 billion. According to our counterfactual scenario (see annex 1), savings of EUR 33.3 billion would have been accumulated without the COVID-19 pandemic. The difference between actual and counterfactual savings shows us the level of pandemic-related excess savings, which amount to EUR 10.8 billion. The upper left-hand panel of chart 1 shows this decomposition for the six quarters under observation (seasonally and working day adjusted). The right-hand column shows mean savings in the observation period.

2.2 Decomposition by source: drop in consumption of services fueled savings despite strong fall in property income

Our first decomposition of households' excess savings (chart 1, upper right-hand panel) shows the contributions of income (and its components) and consumption (and its components) to excess savings.[3] Note that a positive contribution of consumption to savings implies a decrease in consumption. We look at three different components of net disposable household income, namely net labor income, net transfer income and net property income (see annex 2). In addition, we add short-time work payments as a fourth income component.[4] Private consumption is further decomposed into the consumption of nondurable goods, durable goods and services. On average over the course of the pandemic so far, services consumption has been the single most important driver of excess savings. The decline in nondurable goods consumption also contributed to excess savings, whereas the increase in durable goods consumption dampened savings. Of the components of household income, net property income (which fell by 25% in 2020) and net labor income dampened savings, while net transfer income and short-time work payments contributed to higher savings. A look at the quarterly profile of savings yields additional insights: Lagged transfer payments contributed to the peak of savings in the fourth quarter of 2020.

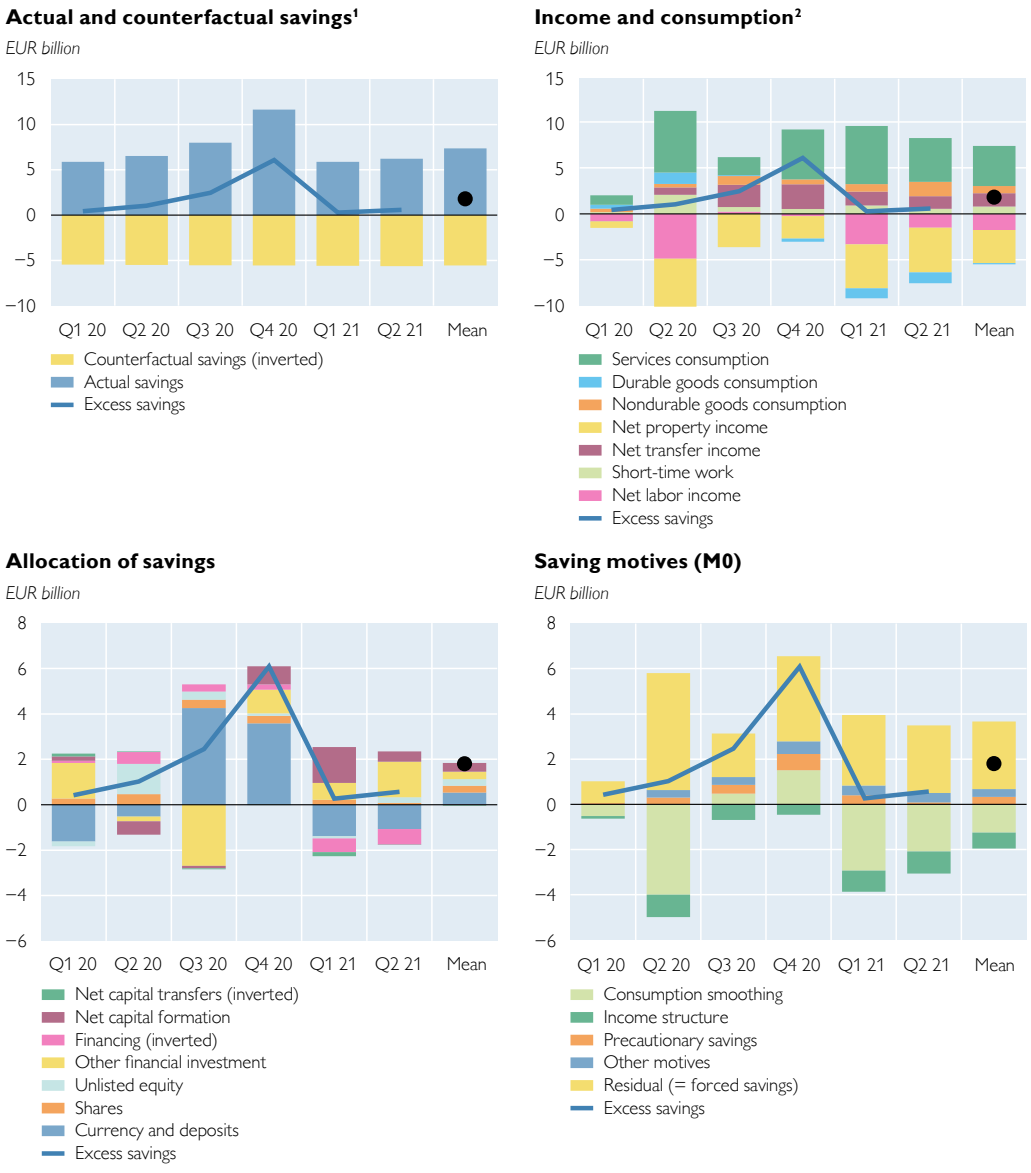
The contraction in services consumption during the first lockdown in Austria in Q2 20 was compensated by a decline in labor and property income. Due to lagged transfer payments, transfer income drove up households' total income only marginally in Q2 20, whereas short-time work payments helped stabilize income. Hence, the savings ratio increased only marginally. In the following quarters, transfer income was an important driver of savings, which peaked in the fourth quarter of 2020. In the first half of 2021, substantial income losses and a strong decline in durable goods consumption brought savings almost back to the counterfactual level.

[3] *We omitted changes in pension entitlements (national accounts code D8) to simplify the picture, since their contribution to savings is low (8% in 2019) and remained almost unchanged despite the pandemic.*

[4] *Since short-time work payments are made to firms, they are assigned to wages and salaries in the sectoral accounts data. For the purpose of this study, we decompose net labor income into short-time work payments and net labor income less short-time work payments.*

Chart 1

Decomposition of Austrian households' excess savings along different dimensions



Source: Authors' calculations.

[1] *Excess savings = Actual savings – Counterfactual savings (inverted).*
[2] *A fall in consumption implies positive contributions to savings.*

2.3 Decomposition by allocation: accumulation of currency and deposits in 2020 reversed in first half of 2021

Next, we look at the allocation of households' excess savings accumulated during the pandemic. Equation (1) defines net savings as net disposable income minus consumption plus changes in pension entitlements.

$$\textit{Net savings (B.8n) = A net disposable income – consumption + + changes in pension entitlements (D8)} \quad (1)^{5}$$

Besides savings, total funds available for nonconsumption purposes (= investment) include net wealth transfers and net financing (left-hand side of equation (2)). Households can use these funds to invest in real assets (net capital formation) or in financial assets.

$$\textit{Savings (B.8n) + net wealth transfers (D9.r – D9.p) + net financing (F.LIAB) = = net capital formation (P.5g – P.51c) + financial investment (F.ASSETS)} \quad (2)$$

If we rearrange equation (2), we can obtain the allocation of savings by equation (3):

$$\textit{Savings (B.8n) = net capital formation (P.5g – P.51c) + + financial investment (F.ASSETS) – net wealth transfers (D9.r – D9.p) – – net financing (F.LIAB)} \quad (3)$$

Financial investment in the quarterly financial accounts comprises 17 different categories. To simplify our analysis, we aggregate these into four categories (currency and deposits, shares, unlisted equity and other financial investment).

Our calculation of excess financial investment differs from that of excess savings. Since we did not produce forecasts for financial investment in the December 2019 Broad Macroeconomic Projection Exercise (BMPE) and since seasonal adjustment yields questionable results for some series, we calculate excess financial investment in the following way: For each category of financial investment, we first calculate the deviation of quarterly levels during the period from Q1 20 to Q2 21 from the respective average quarterly level for the years from 2017 to 2019 and then rescale it, so that excess financial investment plus excess real investment match total excess funds available.

The bottom left-hand panel of chart 1 shows the results of this decomposition. On average over the six quarters under observation, all components of excess savings show similar contributions to households' total savings. Over time, a distinct profile emerges. During the first lockdown in Austria (Q1 20), households' excess savings were mostly used to invest in unlisted equity, i.e. to support households' own businesses classified in the household sector. In the second half of 2020, the bulk of excess savings were used for the accumulation of currency and deposits, whereas in the first half of 2021, the decline in the savings ratio was driven by the reduction of this position. Other financial investment played a dominant role in the buildup of savings in Q1 20 and in their reduction in Q3 20, while shares only played a minor role.

2.4 Decomposition by motive: increase of savings ratio driven by forced savings

Next, we decompose households' total actual savings into saving motives. We do this by econometrically estimating various models for the savings ratio. The variables used in these models try to capture the following standard motives and/

[5] *National account codes in parantheses.*

or determinants of saving: consumption smoothing, the composition of income, precautionary savings, Ricardian savings and a savings target. In addition to these motives, we include the real interest rate and the debt-to-income ratio in our analysis as controls.[6] The residual of these estimations during the pandemic will be interpreted as "forced" savings (in line with Dossche and Zlatanos, 2020), i.e. as consumption that could not materialize due to business shutdowns (mostly services).

First, we consider *consumption smoothing*, which is a direct consequence of the permanent income hypothesis (Friedman, 1957) and the life cycle hypothesis (Modigliani and Brumberg, 1956). The permanent income hypothesis states that current consumption depends on expected long-term permanent income and not on current income, as suggested by Keynesian theory. According to the life cycle hypothesis (Modigliani, 1956), households want to maintain a stable consumption path over their entire lifetime. Both theories imply that savings increase in periods with higher income and decrease in periods with lower income. Our proxy for consumption smoothing is the percentage deviation of real disposable household income from the quarterly sectoral accounts from its trend.[7] In periods when disposable income is above (below) its trend, savings should increase (decrease); thus, we expect the respective coefficient to have a positive sign.

Our second determinant is the *composition of income*. Empirical literature[8] shows that the marginal propensity to consume (MPC) differs considerably across income components. The MPC is defined as the amount of additional consumption generated by one additional unit of income and/or wealth. De Bondt et al. (2019) reviewed the empirical literature and estimated MPCs for the euro area and its four largest economies (Germany, France, Italy, Spain). They distinguish between labor income, transfer income, property income, financial wealth and nonfinancial (housing) wealth. The bulk of estimates for the MPC out of labor and transfer income ranges from 0.8 to 1, whereas the MPC out of property income is much lower in most cases (0.07 to 0.3). The estimates for the MPC out of wealth are substantially lower, between 0 and 0.01.[9] According to our own estimates for Austria (see annex 3, table A1), the MPC for nonproperty income is always higher (0.75 to 1.05) than that for property income (0.54 to 0.71).[10] Our proxy variable for income composition is the share of net property income in total (net) disposable household income. Net labor income, net transfer income and net property income are calculated from quarterly sectoral accounts data.[11] On aggregate, a higher share of income from property should, ceteris paribus, lower consumption and thus

[6] *Besides the motives used in our models, there are other saving motives such as, i.a., bequest (Kotlikoff, 1988, or Dynan, Skinner and Zeldes, 2002), imperfect capital markets (Liu and Woo, 1994) or buffer stock savings (Carroll, 1997).*

[7] *We calculate the trend employing an HP filter.*

[8] *See e.g. Winkler (2016), Rodriguez-Palenzuela et al. (2016) or de Bondt et al. (2019).*

[9] *See Fenz and Fessler (2008) for a review of the empirical literature before the financial crisis.*

[10] *These macroeconomic MPCs for Austria were obtained by estimating the long-run equilibrium relationship between private consumption, labor income, transfer income, property income, net financial wealth and housing wealth for the period from Q1 01 to Q4 19 in seven private consumption models. All variables were entered in real terms and logs. We found stable cointegrating relationships between the variables. In the specifications with only two income components, the MPC for nonproperty income (0.75 to 1.05) is larger than that for property income (0.54 to 0.71). In models with three income components, the results are mixed (see annex 3, table A1).*

[11] *Since the sectoral accounts only record total direct taxes and social security contributions paid by the household sector, total direct taxes were disaggregated into the three income categories using tax data.*

increase savings. Hence, we expect the coefficient of income composition to have a positive sign.

Third, we consider the *precautionary savings* motive. The theory of precautionary savings states that uncertainty about future income developments triggers the accumulation of wealth. Although this hypothesis has been tested in many studies, empirical results are not conclusive about the prevalence of precautionary savings and the best proxy variables for empirical work (Lugilde et al., 2017). Kennickell and Lusardi (2005) found that the role of precautionary savings is low, at an aggregate level, for the USA. Desired precautionary wealth accounts for only 8% of households' total net worth and is mainly accumulated by older households and business owners. We use two proxies, namely "adequate for savings" from the European Commission's business and consumer survey ("the current economic situation is adequate for savings") and unemployment expectations ("How do you expect the number of people unemployed in this country to change over the next 12 months?", quoted in Dossche and Zlatanos, 2020) from the same source. Assuming that consumers find it more adequate to save and expect higher future unemployment in periods of high individual or general economic uncertainty, an increase in these proxy variables should be associated with higher savings; thus, we expect both coefficients to have a positive sign.

Fourth, we look at the role of *Ricardian savings*. According to Ricardian theory, additional government transfers or tax reliefs to households do not increase consumption because forward-looking households end up saving all their additional income from these transfers or reliefs since they expect future tax increases to pay the deficits incurred at present. It is a well-known stylized fact that Ricardian equivalence in its purest from rarely holds in practice. Recently, Armantier et al. (2020) and Baker et al. (2020) investigated the impact of US government support to households during the pandemic. They found that between 25% and 40% of these funds were spent, indicating Ricardian equivalence only to some degree. We use the year-on-year absolute difference of the government debt-to-GDP ratio from the quarterly national accounts as a proxy for the Ricardian savings motive. An increasing government debt-to-GDP ratio may signal a future need for budget consolidation, i.e. tax increases, which according to Ricardian theory should lower consumption and thus increase savings in the present period. Thus, we expect the coefficient attached to this proxy variable to have a positive sign.

Fifth, the *savings target* addresses the role of wealth in saving decisions. The buffer stock savings theory postulates that households have a certain stock of savings that they target. If their target wealth falls below this target, they increase their savings, and vice versa. We use three different variables for financial wealth, namely the total wealth-to income-ratio, the net financial wealth-to-income ratio and the real (housing) wealth-to-income ratio (see footnote 10 for details on the calculation of the wealth variables). These variables capture different aspects of wealth, with the intuition that, on aggregate, increasing wealth should enable more households to reach their savings target and thus decrease their savings related to this motive. Therefore, we expect negative coefficients on these three proxy variables.

Finally, we include two additional variables: the real interest rate and the debt-to-income ratio. The real interest rate is an important determinant of saving decisions. In theory, higher interest rates make saving more attractive and should

therefore drive up savings. In reality, additional other factors ("income effect") are at play which render the relationship between interest rates and savings less clear.[12] The empirical literature finds mixed evidence (see e.g. Elmendor, 1996, or Beznoska and Ochmann, 2013). We use the interest rate on consumer loans, deflated by annual HIPC inflation. The basic idea behind including the *household debt-to-income ratio* is that, in the national accounts, debt repayments are counted as savings. Higher debt would thus lead to higher savings, and including this variable should control for this accounting effect.

We estimate a full (general) model (M0) that includes all of the above-mentioned motives with their described proxy variables and serves as our benchmark model in the decomposition by saving motives. Based on this general model, we estimate a set of submodels[13] which focus on specific saving motives and also serve as robustness checks (M1 to M8). We limit the estimation sample to the period prior to the pandemic (Q1 01 to Q4 19). We include the lagged endogenous variable in all models to account for autocorrelated residuals. Table 2 shows the estimation results for our benchmark model (M0) and the eight different submodel specifications (M1 to M8). All coefficients have the expected sign in all models. There is only one insignificant variable, namely the total wealth-to-income ratio, in the general model. All other variables are significant, most of them at the 1% level.

Consumption smoothing and income composition are included in all submodels. Compared with the benchmark model, the coefficient of consumption smoothing decreases in the submodels, whereas the coefficient of the income composition proxy variable increases. In specifications with proxies for precautionary savings (M0, M2, M3, M5), the coefficient of the share of property income is lower (0.20 to 0.26) than in specifications without this determinant (0.30 to 0.41). Precautionary savings hence reduce the explanatory power of the property income share. This result supports the findings of Kennickell and Lusardi (2005), who found that precautionary savings are mainly accumulated by older households and business owners. Since our measure of property income includes the net operating surplus of businesses that are part of the household sector, our proxy variables for precautionary savings and income composition partially overlap.

Ricardian effects are significant in the benchmark model (M0) and two submodels (M4, M5). The coefficients of our proxy variables for the savings target show the expected negative sign and are significant in submodels M6 to M8. In the general model, the coefficient is considerably lower and not significant. The effects of the debt-to-income ratio and the lending rate are also somewhat lower in our fully specified benchmark model (M0) than in the two submodels in focus (M1, M3).

Chart 2 shows the individual models' in-sample and out-of-sample predictions of the savings ratio. The left-hand panel shows the fitted values of the savings ratio in the benchmark model (M0) and the eight submodels (M1 to M10) together with the actual values over the estimation horizon. All specifications capture the historical

[12] *When interest rates rise, forward-looking households will anticipate their income to rise since higher interest rates signal higher growth expectations (Dirschmid and Glatzer, 2004). Households that post high shares of interest income might increase their savings when interest rates increase.*

[13] *The submodels were estimated using a specific-to-general approach, starting with the variable(s) in focus and keeping added variables only if they were statistically significant and did not render the variable(s) in focus statistically insignificant.*

Table 3

Estimation results of the savings ratio equations

	M0[1]	M1	M2	M3	M4	M5	M6	M7	M8
Coefficients									
Constant	–3.05	–3.03	0.36	–5.38	–2.13	0.58	4.11	2.66	4.35
Lagged dependent variable									
T–1	0.02				0.38 ***				
T–2		0.26 ***	0.27 ***			0.26 ***	0.36 ***	0.37*	0.36 ***
Consumption smoothing									
Trend deviation of disposable income	0.70 ***	0.36 ***	0.40 ***	0.43 ***	0.35 ***	0.39 ***	0.36 ***	0.37 ***	0.35 ***
Income composition									
Share of property income in total income	0.20 ***	0.41 ***	0.24 ***	0.22 ***	0.39 ***	0.26 ***	0.31 ***	0.33 ***	0.30 ***
Precautionary savings									
Consumer survey ("save now")	0.05 ***		0.03 ***	0.07 ***		0.03 ***			
Unemployment expectations	0.01 **		0.01 **	0.02 ***					
Ricardian savings									
Government debt-to-GDP ratio	0.06 ***				0.06 **	0.06 ***			
Savings target									
Total wealth-to-income ratio	–0.19						–0.80 **		
Net financial wealth-to-income ratio								–1.68 **	
Housing wealth-to-income ratio									–1.33 *
Other variables									
Debt-to-income ratio	0.07 ***			0.09 ***					
Lending rate	0.19 **	0.40 ***							
R2	0.95	0.86	0.85	0.84	0.82	0.86	0.82	0.83	0.82
Durbin-Watson statistic	1.93	2.09	2.07	2.06	2.14	1.92	1.89	1.92	1.86

Source: Authors' calculations.

[1] *M0 = benchmark model; M1 to M8 = submodels.*

development of the savings ratio well. The middle panel of chart 2 shows the conditional forecasts of the savings ratio with the realized values of the conditioning variables for the period from Q1 19 to Q2 21. For Q1 20 to Q2 21, these forecasts are out of sample. None of the specifications come close to predicting the observed path of the savings ratio; instead, they predict a sharp decline for Q2 20, when, in fact, the savings ratio was already increasing. The subsequent movements of the savings ratio (increase until Q4 20, fall afterward) are predicted correctly (regarding the direction) but the predicted level of the savings ratio remains too low.

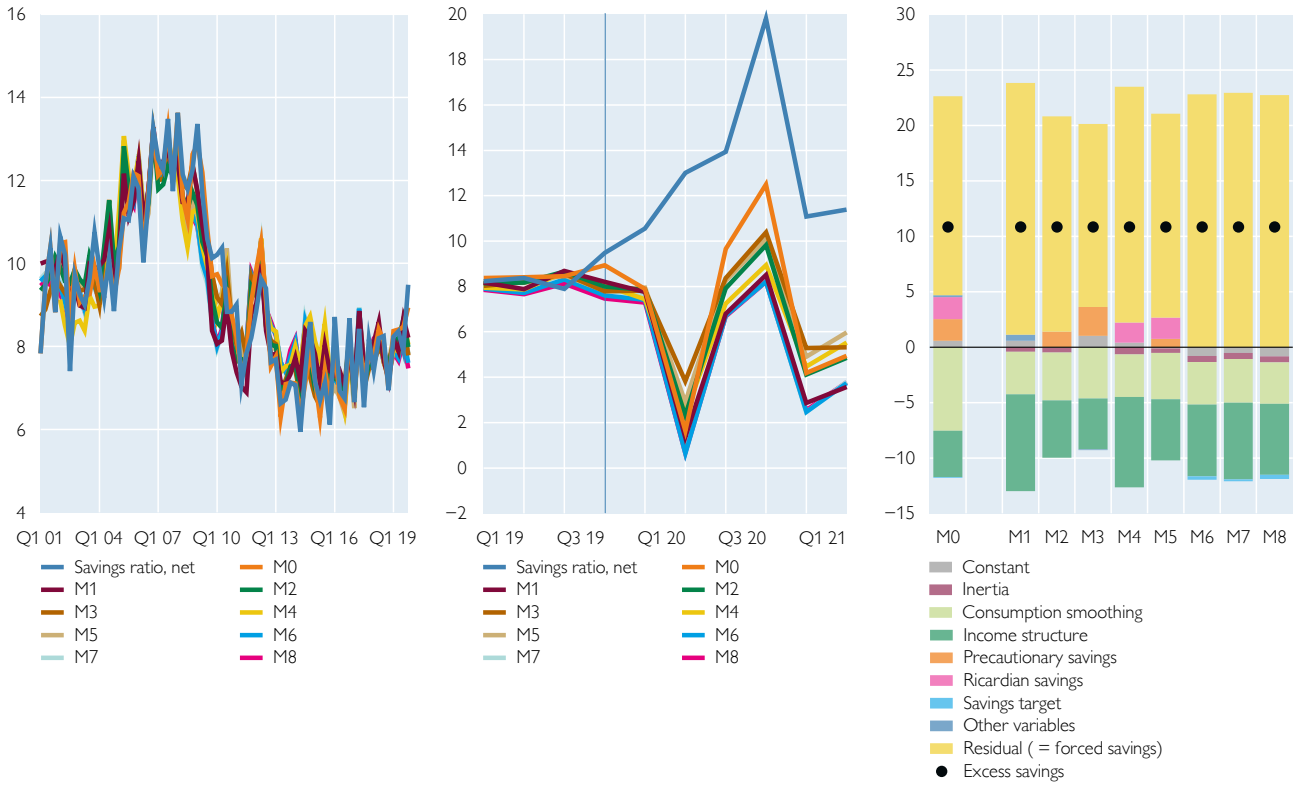
The right-hand panel of chart 2 shows a decomposition into saving motives of the excess savings Austrian households accumulated during the pandemic (EUR 10.8 billion) for each of our nine models (see also table A2). Although the importance of the individual motives differs between specifications, the main result is robust: The fall in disposable household income and the even stronger decline in property income combined with the role of consumption smoothing suggest that the savings ratio decreased instead of increased during the pandemic. The effect of precautionary savings on the savings ratio is positive but small. This might be an effect of the short-time work scheme, which reduced unemployment expectations considerably. Consequently, forced savings (defined as the residual) substantially

Chart 2

Estimation results of the savings ratio equations: M0 to M8[1]

Actual and fitted savings ratios, Q1 01 to Q4 19

Savings ratio in %



Source: Authors' calculations.

[1] M0 = benchmark model; M1 to M8 = submodels.

contributed to the increase in the savings ratio.[14] Our estimates of the different specifications for forced savings range from EUR 17 billion to EUR 23 billion (accumulated over the period from Q1 20 to Q2 21). Specifications including the precautionary savings motive (our benchmark M0 and submodels M2, M3, M5) exhibit lower forced savings. The quarterly results of this decomposition for our benchmark model M0 can be found in the bottom right-hand panel of chart 1.

3 Implications for future consumption and saving patterns

When looking at the expected development of household savings in Austria after the pandemic, we must distinguish between two different questions: First, how fast will the marginal propensity to save (MPS) out of current income go back to normal? And second, to what extend will the stock of excess savings accumulated

[14] This result is in line with a similar exercise carried out in Dossche and Zlatanos (2020) for the euro area. It is also confirmed by the Deutsche Bundesbank's Panel on Household Finances (PHF) survey of March 2021, in which half of the respondents indicated that over the past year they had more monetary resources available at the end of each month than before the pandemic. Of these 50%, which correspond to higher-income households, 95% reported that limited consumption opportunities were an important reason for their higher savings (Deutsche Bundesbank, 2021).

during the pandemic be dissaved? The actual development of the savings ratio is the sum of these two effects. When households use their accumulated savings to satisfy pent-up demand, the observed savings ratio is below the MPS.

There is a consensus among most forecasters that the MPS will quickly decline as soon as all lockdown measures are lifted (see e.g. Deutsche Bundesbank, 2021; Banque de France, 2021; European Commission, 2021; or OECD, 2021). In the first half of 2021, savings in Austria almost reverted to pre-pandemic levels. However, this was not due to the release of pent-up demand but to a decline in income, notably property income. Household consumption in Austria declined in the first quarter of 2021 due to the second lockdown and recovered in the second quarter of 2021 as containment measures were lifted. All components of private consumption were still below pre-crisis levels in Q2 21 except for durable goods, which were 24% above the level recorded in Q4 19.

There is a lot more disagreement in the literature regarding the amount or share of excess savings that will be spent to meet pent-up demand, however. Early evidence from Germany (Bernard, Tzamourani and Weber, 2020) suggests that consumers were significantly more cautious in their spending intentions after the relaxation of the first pandemic-induced lockdown in 2020. To shed light on this question, we focus on two different perspectives. First, we consider information from surveys asking households how they plan to use their excess savings. The available surveys exhibit a huge variation, depending on their timing and design and on country characteristics. They point toward some pent-up demand, which is of apparently limited magnitude, however.[15] This is mainly because the lion's share of excess savings is expected to have accrued in high-income households, which saw a strong increase in their savings during the pandemic while lower-income households did not increase their savings by much or even drew on existing savings. On average, one-quarter to one-third of excess savings is expected to be consumed. There is little information on the transition dynamics, i.e. the length of the period until this pent-up demand is satisfied, and on the respective spending profile over time.

Second, we draw on theoretical and empirical studies on households' MPC out of savings. The MPC out of wealth is considerably lower than the MPC out of income (Albacete and Lindner, 2017; Jappelli and Pistaferri, 2014). The main problem with this approach, therefore, is whether households perceive their excess savings as additional income or as wealth. During the pandemic, most additional savings were accumulated by high-income households, which may have a higher tendency to perceive these excess savings as additional wealth. Some low-income households, by contrast, were unable to accumulate excess savings during the

[15] *In the Deutsche Bundesbank's Panel on Household Finances (PHF) of March 2021, 70% of respondents indicated that they would spend part of their excess savings to consume goods and services once restrictions are lifted. Based on these responses, the Deutsche Bundesbank forecasts a lower bound of 25% of excess savings spent for consumption and an upper bound of 45%, with the baseline being 35% over the coming years (Deutsche Bundesbank, 2021). In a household survey conducted by the Bank of England, most households (about 70%) said they planned to hold their savings in their bank accounts, while only 10% of those households that had increased their savings (less than 3% of the whole sample) planned to spend the money they had saved (Bank of England, 2020). The Centre for Economics and Business Research (CEBR) asked 4,000 UK households about their future spending plans: 18% of households with increased savings plan to spend all excess savings in 2021, 33% plan to spend them partially and 38% do not plan to spend any of the savings in 2021. Overall, UK households said they planned to spend 26% of their aggregate savings in 2021.*

pandemic; they even incurred higher debts (Raja, 2021). Hence, it is reasonable to assume that their spending on pent-up demand after the pandemic will be limited and that a large share of excess savings will not be spent.

If we assume that 25% of excess savings (EUR 2.7 billion) will be spent on pent-up demand, this will result in a cumulated increase in Austrian GDP of EUR 2.4 billion (or 0.4%) until 2023 according to a simulation performed with the OeNB's macroeconomic model (Austrian Quarterly Model – AQM). This assessment is, of course, subject to considerable uncertainty about the course of the pandemic and the consumption components[16] that will be most affected.

The medium- to long-term impact of the pandemic on consumer spending and saving is ambiguous. After a phase of higher consumption in reaction to pent-up demand, precautionary savings might increase, driven by the pandemic experience. This effect could last longer, as younger households have been heavily affected. In the long run, households' higher saving rate might translate into higher investment, which could improve productivity and potential output.

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[16] *Pent-up demand might be skewed toward holidays abroad. A survey conducted among UK households (Centre for Economics and Business Research, 2021) shows that 34% of households plan to spend their savings on holidays abroad and 28% plan to spend them on domestic holidays. Expenses for visits to restaurants and cafés rank third (28%) and expenses for food and drink fourth (25%). If we apply these results to Austria, we must consider the fact that Austrian residents' domestic tourism expenditure was considerably above the pre-crisis level in the summers of 2020 and 2021. This implies that for the 2022 summer season, Austrians' tourism-related pent-up demand will likely be skewed toward tourism abroad. On the other hand, it can be expected that the Austrian tourism sector will benefit from the release of pent-up demand from abroad.*

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Annex 1

Definition of the counterfactual scenario

As the basis for our counterfactual scenario, we use the OeNB's last economic outlook for Austria that was produced prior to the pandemic for the Broad Macroeconomic Projection Exercise (BMPE), i.e. the economic outlook of December 2019 (Fenz and Schneider, 2020). Since the level of historical data has been revised for most variables since then, and because of a forecasting error for Q4 19 (for sectoral accounts data also for Q3 19), we cannot directly use the level of the variable projected in December 2019 in this exercise. Instead, we extrapolate the historical data of Q4 19 with the quarterly growth rates calculated in the December 2019 BMPE for Q1 20 to Q2 21. Since not all variables needed for our exercise, e.g. financial investment, were projected in the BMPE, we had to forecast these variables on the basis of information that was available in December 2019. The components of private consumption were projected using the growth rate of total consumption from the December 2019 BMPE; financial investment and its components were projected using the growth rate of savings. Confidence indicators needed for the savings rate models were interpolated using the average value for 2019.

Annex 2

Income decomposition

In the quarterly nonfinancial sector accounts, disposable household income (according to the expenditure concept) is available for the following components: compensation of employees, mixed income, gross operating surplus, property income (interest income, other property income) and social transfers.

We follow de Bondt et al. (2019) and define the following three income categories[17]: Labor income is the sum of compensation of employees (D1R) and gross mixed income (B3G); transfer income is social benefits other than social transfers in kind (D62) plus other current transfers (D7); and property income is the sum of gross operating surplus (B2G, which consists mostly of imputed rents for owner-occupied housing) and net property income (D4, i.e. net interest earnings plus net other property income). However, our approach differs in the way how direct taxes (D5P) and social security contributions (D61) are distributed across these three income categories. While de Bondt et al. (2019) subtract social security contributions from labor income and distribute direct taxes proportionally among the income components, we use administrative tax data to distribute direct taxes among income components. This approach results in a much better estimate for income components after taxes, since the approach used by de Bondt et al. (2019) underestimates net property income. The main reasons for this underestimation are that de Bondt et al. (2019) consider financial intermediation services indirectly measured (FISIM), i.e. imputed interest payments, and imputed rents for owner-occupied housing, which are not taxed, and the fact that dividend payments in the national accounts are too high when compared with other statistics.

[17] *National accounts codes are given in parentheses.*

Annex 3

Table A1

Estimation results of the private consumption models[1]

	C1[4]	C2	C3	C4	C5	C6	C7
Elasticities[2]							
Labor + transfer income	0.92 ***	0.72 ***	0.65 ***	0.67 ***			
Labor income					0.54 ***	0.29 ***	0.27 ***
Transfer income					0.42 ***	0.41 ***	0.34 ***
Property income	0.10 ***	0.12 ***	0.13 ***	0.13 ***	0.13 ***	0.15 ***	0.16 ***
Total wealth		0.14 ***				0.18 ***	
Net financial wealth			–0.06 *				–0.09 **
Housing wealth			0.25 ***	0.18 ***			0.32 ***
Marginal propensity to consume[3]							
Labor + transfer income	1.05	0.83	0.75	0.77			
Labor income					0.97	0.51	0.49
Transfer income					1.31	1.27	1.08
Property income	0.54	0.65	0.71	0.70	0.66	0.78	0.83
Total wealth		0.01				0.01	
Net financial wealth			–0.01				0.00
Housing wealth			0.01	0.01			0.02

Source: Authors' calculations.

[1] All variables are real and expressed in logs. We report only equations with significant estimation results.
[2] = percentage change of private consumption per 1% change of respective variable.
[3] = change of private consumption in euro per EUR 1 change in respective variable.
[4] C1 to C7 denote the seven different private consumption models estimated in this exercise.

Table A2

Decomposition of excess savings into saving motives

	M01	M1	M2	M3	M4	M5	M6	M7	M8
	Contributions to accumulated excess savings in EUR million								
Constant	0.6	0.6	–0.1	1.0	0.4	–0.1	–0.8	–0.5	–0.8
Inertia		–0.4	–0.4		–0.7	–0.4	–0.5	–0.6	–0.5
Consumption smoothing	–7.5	–3.9	–4.3	–4.6	–3.8	–4.2	–3.8	–3.9	–3.7
Income structure	–4.2	–8.7	–5.2	–4.6	–8.2	–5.5	–6.5	–6.9	–6.4
Precautionary savings	2.0		1.4	2.6		0.8			
Ricardian savings	2.0				1.8	1.9			
Savings target	–0.1						–0.3	–0.2	–0.4
Other variables	0.2	0.6		–0.1					
Residual (= forced savings)	17.9	22.7	19.4	16.5	21.3	18.4	22.8	22.9	22.7
Excess savings	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8

Source: Authors' calculations.

[1] M0 = benchmark model; M1 to M8 = submodels.