

Economic Watch

# Spanish household saving in times of the pandemic

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- **Spanish household saving increased by EUR 60.807 billion in 2020 (126.6%) to 14.7% of gross disposable income, 6.6 percentage points above the average over the last two decades.** Spain was the Eurozone country that recorded the largest increase in the household saving rate in the first half of 2020.
- **The recovery in savings took place in a context of reduced household income.** The decline in private consumption, which was concentrated in goods and services enjoyed in society and those associated with mobility, explained the evolution of savings.
- **According to BBVA Research estimates, most of the increase in savings is due to the inability to consume as a result of the restrictions imposed by the epidemiological situation and the fear of contagion (forced savings).** The uncertainty about the economic situation, which stems from the deterioration of labor expectations (precautionary component), also contributed to the rebound in savings.
- **The absorption of excess savings accumulated in 2020 will boost household expenditure in the coming quarters, even though uncertainty is exceptionally high.** BBVA Research simulations suggest that private consumption could grow up to two percentage points more in 2021 if the entire increase in savings, saved as wealth, is used by households as a temporary increase in income over the next year.

## 1. Introduction

**The aim of this Economic Watch is to understand the factors that explain the rebound in the household saving rate in 2020, following the outbreak of the health crisis.** Quantifying the importance of each component is key because of its implications for the post-COVID-19 recovery. If the increase in household saving is mostly explained by the inability to make purchases (forced savings), the time it will take to return to its equilibrium level is uncertain. Households could perceive excess savings as an unexpected rise in income and, therefore, spend it faster than if it was an increase in financial wealth. The lack of precedents makes it difficult to know what part of the total forced savings will be channeled to consumption or when. Uncertainty will be smaller if the growth of savings is due to usual determinants (income, wealth, interest rates, etc.) or to the worsening of labor expectations (precautionary component).

**The results indicate that uncertainty, both economic and health-related, was responsible for the growth in household saving last year** (EUR 60 billion), in line with the reduction in the value added of the sectors most affected by the pandemic, such as those of commerce, transportation and hospitality. The precautionary component accounted for one-third of the increase (EUR 20 billion). The forced component offset the negative contribution of fundamentals—especially income—and explained the rest.

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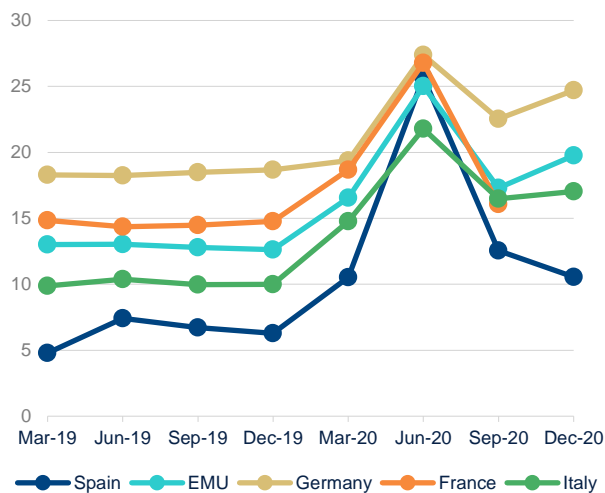
<sup>1</sup>: We thank Miguel Cardoso, Rafael Doménech, Joana Godinho, Álvaro Ortiz, Virginia Pou and Jorge Sicilia for useful comments and suggestions.

**The COVID-19 crisis caused an unprecedented increase in household saving in Europe.** The percentage of disposable income that households allocated to saving doubled in the Eurozone between the fourth quarter of 2019 and the second quarter of 2020 to 25%.<sup>2</sup> Although it declined during the second half of last year, it still reached 19.8% in the fourth quarter of 2020, seven points more than at the end of 2019 (Figure 1).

**Spain was the Eurozone country that recorded the largest increase in the household saving rate in the first half of 2020.** It reached 25.7% of disposable income between April and June 2020, 4.3 times higher than in the fourth quarter of 2019 and 6.6 percentage points above the average over the last two decades. The correction since then put the saving rate at 10.6% for the last quarter of last year, 4.3 points above the pre-crisis figure.

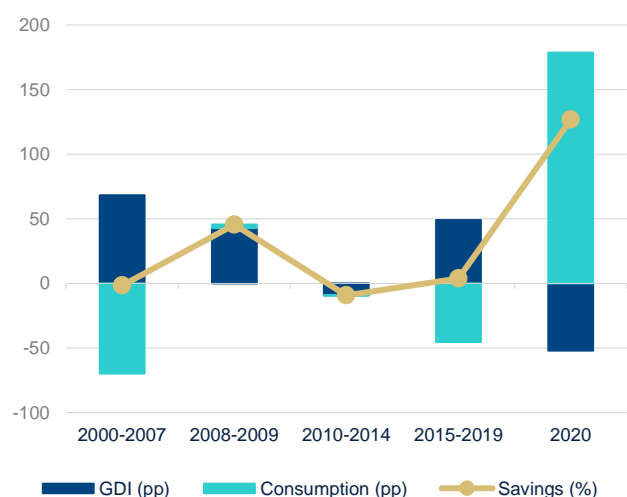
**The rebound in saving in Spain took place in the context of a reduction in household income.** As Figure 2 illustrates, the fall in consumption in 2020 (-12.0%) offset the decline in household income (-3.3%). As a result, the household saving rate exceeded 14.7% of its disposable income for the year as a whole (EUR 108.8 billion) and multiplied the figure of 2019 by 2.3 (EUR 60.8 billion more).

Figure 1. **THE HOUSEHOLD SAVING RATE IN EUROPE**  
(% OF GROSS DISPOSABLE INCOME. SWDA\*)



\*Series corrected for seasonally and working-day adjusted data.  
Source: BBVA Research based on Eurostat data

Figure 2. **SPAIN: CONTRIBUTIONS TO THE YEAR-ON-YEAR VARIATION IN GROSS HOUSEHOLD SAVINGS (% AND PERCENTAGE POINTS)**



Source: BBVA Research based on INE data

**What are the factors that explain the increase in household saving? First, the change in some of its fundamentals, such as the surge in public sector liabilities.** According to the Ricardian equivalence hypothesis, some consumers internalize that current public debt will end up being met by higher fiscal pressure in the future (which would thus be analogous to a deferred tax) and will choose to increase their present savings. In this respect, public debt in Spain grew by more than EUR 3800 per inhabitant in 2020 (up 13%).

**The second factor that could have contributed to the advance of household saving would have been the increase in labor uncertainty.** Job destruction has driven savings on the basis of caution, especially for risk-averse individuals, despite the implementation of income protection policies, such as temporary redundancy plans (ERTE) and benefits for the self-employed. According to BBVA Research estimates, 2020 closed with 830,000

2: Seasonally and working-day adjusted (SWDA) data.

social security contributors less than there would have been in the absence of the health crisis and the more than one million employees being covered by ERTes or the self-employed receiving a benefit.

**Finally, consumer savings may have increased because of the inability to spend as a result of the restrictions imposed after the deterioration of the epidemiological situation or the fear of contagion**, which is a distinguishing feature of the current crisis. Following the declaration of the first state of alarm on March 14, 2020, which limited people's freedom of movement and the opening to the public of commercial establishments, expenditure on certain goods and services, like those consumed in society and those associated with mobility, has fallen significantly and for a long time. This expenditure has not been compensated by the growth in demand for products that are not acquired in person and consumed at home or by the change in relative prices.<sup>3</sup> Preliminary evidence suggests that savings forced by social distancing has played a major role in raising the household saving rate in major European economies, including Spain.<sup>4</sup>

Moving forward, if the excess savings accumulated in 2020 falls at the same rate as that observed in previous episodes of accumulated imbalances, **the saving rate should return to its path of equilibrium rapidly (between the end of 2021 and the beginning of 2022). However, this time uncertainty is exceptionally high**, both because of the nature of the increase in savings and because of its concentration in the population groups with the highest age and income level. In any case, the absorption of the savings will boost household expenditure in the coming quarters. **The simulations suggest that private consumption could grow by two percentage points more in 2021 if the entire increase in savings, saved as wealth, shifts to income over the next year.**

The rest of the Economic Watch is structured as follows. Section 2 reviews the traditional determinants of the household saving rate and the factors that explain their deviation from the long-term trend. Section 3 analyzes the results of the estimates and details the contribution of each component to the increase in household saving during the health crisis. Section 4 presents different scenarios of short- and medium-term evolution of household consumption and saving depending on how fast the saving rate returns to its trend level and what part of excess savings becomes income and what part becomes consumption. Finally, section 5 summarizes the main findings of the Economic Watch.

## 2. Determinants of the saving rate

The theoretical starting-point for analyzing household saving is the *life-cycle theory*.<sup>5</sup> It postulates that agents try to cushion income fluctuations in order to achieve a mild consumption pattern throughout their lives. Since they do not have access to markets that allow them to be secured against all possibilities, **consumers try to save most when their income is relatively high**. Likewise, **increases in wealth considered permanent by households** increase financial support for households and access to credit, **allowing them to reduce savings**. Another implication of the life-cycle theory is that savings are reduced after retirement, when agents have accumulated wealth and their incomes decline. This causes **older populations to exhibit lower, or even negative, saving rates**. However, the evidence is not conclusive.<sup>6</sup>

3: Both the information provided by BBVA's customer card purchases and BBVA POS purchases and the modification in the product weights in the CPI basket showed a change in the consumption habits of Spanish households. See, for example, Ulloa 2021 and INE 2021.

4: From the results of a household survey in France, Germany, Italy, the Netherlands and Spain, Hodbod et al. 2020 they found that the fear of contagion is the main reason for the decline in consumption in services. In addition, Spaniards are those who cited this reason most frequently.

5: See Modigliani y Brumberg 2013. A review of the literature on the microeconomic determinants of savings can be found at Browning y Lusardi 1996.

6: Mody, Ohnsorge y Sandri (2012a) show that the saving rate increases with the dependency ratio for a sample of OCDE countries.

In order for consumers to be able to soften their expenditure with income that is not constant throughout their lives, they must transfer resources over time through both savings and financing instruments.<sup>7</sup> These decisions will therefore be affected by **interest rates**, whose impact on the economy's aggregate saving rate is ambiguous. Thus, a rise in interest rates increases the opportunity cost of current consumption, which incentivizes savings (substitution effect). In addition, this increase deteriorates the financial position of debtors and improves that of creditors (income effect). Consequently, **the sign of the impact of interest rates will depend on the relative size of the two effects and the debit or credit position of households.**

**Household savings may interact with the indebtedness of public administrations.** Thus, according to **Ricardian equivalence**, a fraction of individuals internalize that increases in public debt will be amortized with additional taxes on their future income. In anticipation, agents will increase their savings<sup>8</sup>.

In order to **study the behavior of savings during 2020, a model of delays distributed for Spain in the period from 1999–2019 has been estimated.** The model consists of two equations that explain the dynamics of the saving rate based on its fundamentals. These include disposable income, net financial wealth and real estate, interest rates, debt of the Public Administration and the dependency rate.<sup>9</sup> The Annex contains the specification details and estimated parameters of the selected model.

Figure 3 shows the adjustment of the regression in levels of the saving rate on its fundamentals. It is noted that the differences with the observed rate are reduced for the estimation period. These deviations from the equilibrium can be partially explained by other factors, such as **income uncertainty**. Thus, distrust related to the change in income **leads risk-averse agents to accumulate savings on the basis of caution.**<sup>10</sup> To capture this effect, the difference between the unemployment rate, including wage earners on the Temporary Redundancy Plan (ERTE), and its long-term level has been used<sup>11</sup>. The larger this gap, the more employed people perceive that the likelihood of losing their job is higher.

7: A smaller supply of credit would lead agents to draw more from savings to avoid liquidity constraints in the future.

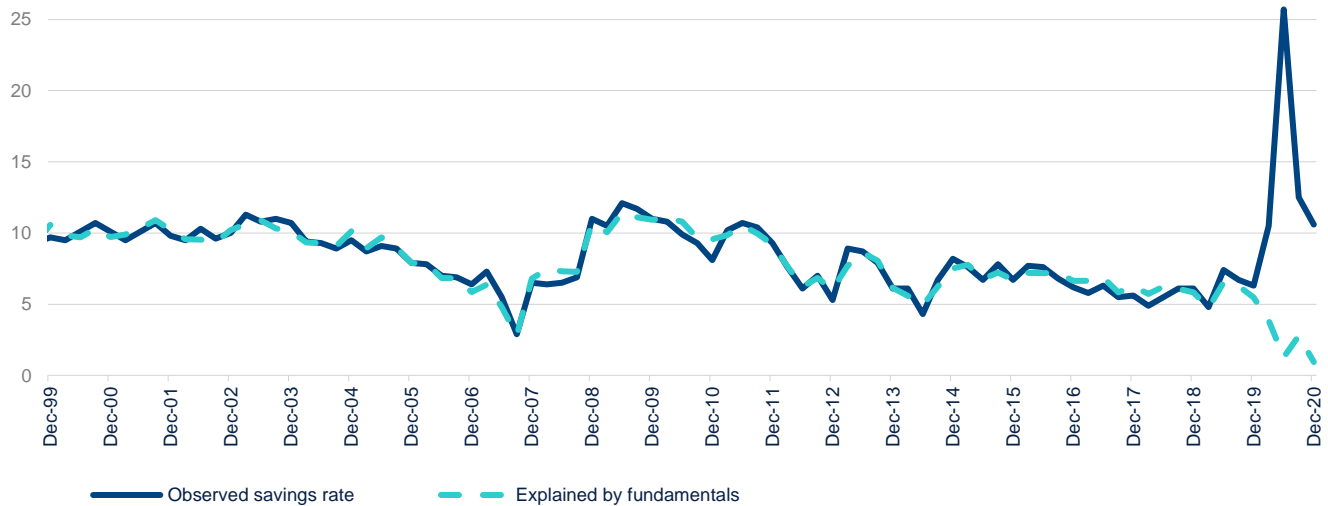
8: In the current context, Bilbiie, Florin, Gauti Eggertsson y Giorgio Primiceri (2021) argue that the increase in private savings is not excessive when compared to public indebtedness in the U.S. De Castro y Fernández 2013 find no evidence to support the Ricardian hypothesis for the Spanish economy, although it is argued that this may change in contexts in which public debt sustainability is at stake.

9: The dependency rate is calculated as the ratio of the population between 16 and 64 years and the population over 65.

10: For a review of the literature on precautionary saving, see Lugilde, Bande, y Riveiro 2019.

11: The long-term level used was the non-accelerating inflation rate of unemployment (NAIRU), which estimates the level of frictional unemployment below which aggregate demand is located above its long-term equilibrium, when the economy approaches limits on productive capacity utilization and therefore inflationary demand pressures appear in both wages and final consumer prices.

FIGURE 3. **HOUSEHOLD SAVING RATE OBSERVED AND EXPLAINED BY FUNDAMENTALS**  
(% OF GROSS DISPOSABLE INCOME. SWDA DATA)



Source: BBVA Research

### 3. Savings during the pandemic

The variation in the saving rate predicted by the model for 2020 is significantly lower than the observed rate, as shown in Figure 4. This is because the effect on consumption due to health restrictions and the fear of contagion were not captured by the change in traditional determinants.<sup>12</sup> The difference between the variation in the saving rate and the model's projection is interpreted as the forced component of the savings. As Figure 4 illustrates, its contribution to saving rate fluctuations was comparatively high in the four quarters of the year, especially during the lockdown in the second quarter.<sup>13</sup>

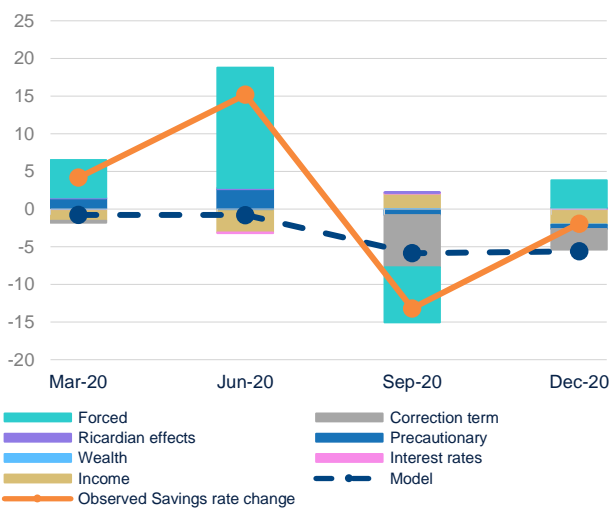
The precautionary reasons associated with job uncertainty contributed to the increase in the saving rate in the first two quarters of the year. Its contribution, although small in relation to the effect of income and the forced component, is significant in the historical perspective. On the contrary, the decline in income put downward pressure on savings. Part of the excess savings accumulated during the first half of 2020 began to be absorbed in the second half, which manifest itself as a correction of the imbalance accumulated during the most severe phase of the health crisis. Changes in family wealth, interest rates and public borrowing would have had little impact.

12: This result is in line with the analysis of the cyclical evolution of the Spanish economy during 2021, as presented in Boscá et al. (2021), which indicates that the disturbances that have idiosyncratically affected private consumption (associated with consumption restrictions and the effect of increased uncertainty on the level and composition of expenditure) explain much of the negative contribution of demand factors to growth. The authors find that such disturbances in private consumption have been decreasing since the second quarter of 2020, becoming almost zero by the end of the year, and returning to positive in the first quarter of 2021.

13: Other studies also identify the forced component as the main contribution to saving for the Eurozone (Dossche y Zlatanov 2020, Del Río y Cuenca 2020), for Spain (Cuenca y Martínez 2021) and for France (Gebauer, Ouvrard, y Thubin 2020).

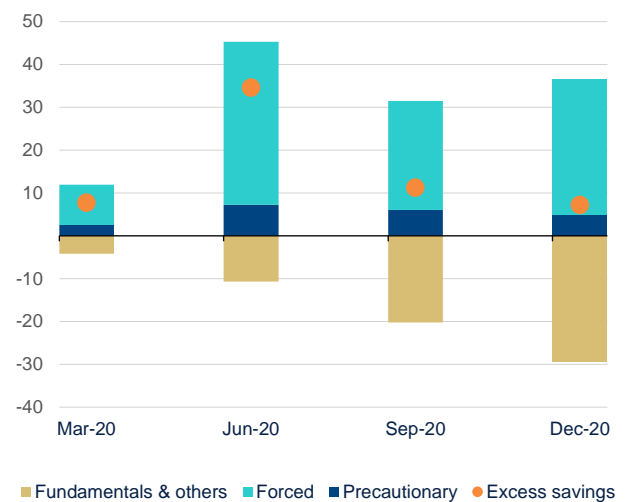
Figure 5 represents the additional savings in each quarter from the pre-crisis level (last quarter of 2019). **Forced savings contributed about EUR 40 billion to savings in the second quarter of 2020**, the period with the most severe health restrictions. In the third quarter, with the de-escalation and relaxation of health restrictions, the contribution of the forced component was reduced to EUR 25 billion. Whereas in the final months of the year, it increased again as a result of the worsening epidemiological situation. For its part, the contribution to savings for cautionary reasons remained more stable during the year.

Figure 4. **CONTRIBUTIONS TO THE QUARTERLY CHANGE IN THE SAVING RATE (PP)**



Source: BBVA Research

Figure 5. **CONTRIBUTIONS TO ADDITIONAL SAVINGS WITH RESPECT TO THE PRE-CRISIS LEVEL (4Q19) (BILLIONS OF EUROS)**

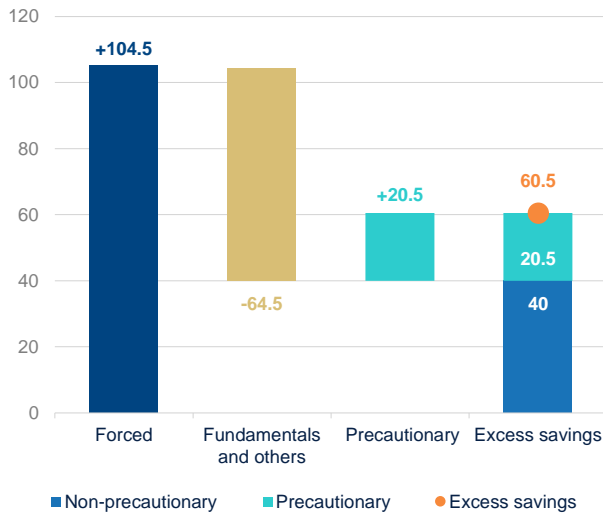


Source: BBVA Research

**An additional savings of EUR 60.5 billion was created in all of 2020, of which one third was due to precautionary reasons.** The rest (some 40 billion) was the result of subtracting from the contribution of forced savings (105 billion) the deterioration of fundamentals (mainly income) and the correction of the imbalance (Figure 6).

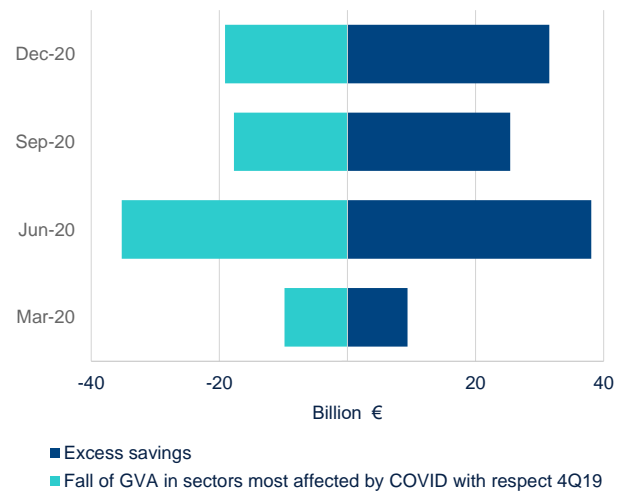
In order to put the contribution of forced savings into perspective, this has been compared with the fall in gross value added (GVA) in the sectors most affected by the restrictions (trade, transportation, hospitality, etc.). As Figure 7 shows, **the magnitude of forced savings and the reduction of GVA in these sectors are very similar for the first two quarters of the year. This reinforces the idea that the forced savings estimated by the model corresponds to the impact of health uncertainty (restrictions and fear of contagion).** However, this relationship appears less direct in the second half of the year, which may be due to the lower severity of the restrictions, absorbing part of the pent-up demand from the first half of the year and the adaptation of consumers and firms to the disease.

Figure 6. **ADDITIONAL SAVINGS WITH RESPECT TO THE PRE-CRISIS LEVEL (4Q19) (BILLIONS OF EUROS)**



Source: BBVA Research

Figure 7. **CHANGE IN FORCED SAVINGS AND GVA IN THE SECTORS MOST AFFECTED BY COVID IN 2020\* (BILLIONS OF EUROS)**



\*Trade, transportation, hospitality, information and communications, artistic, recreational activities, home goods repair and other services.  
Source: BBVA Research

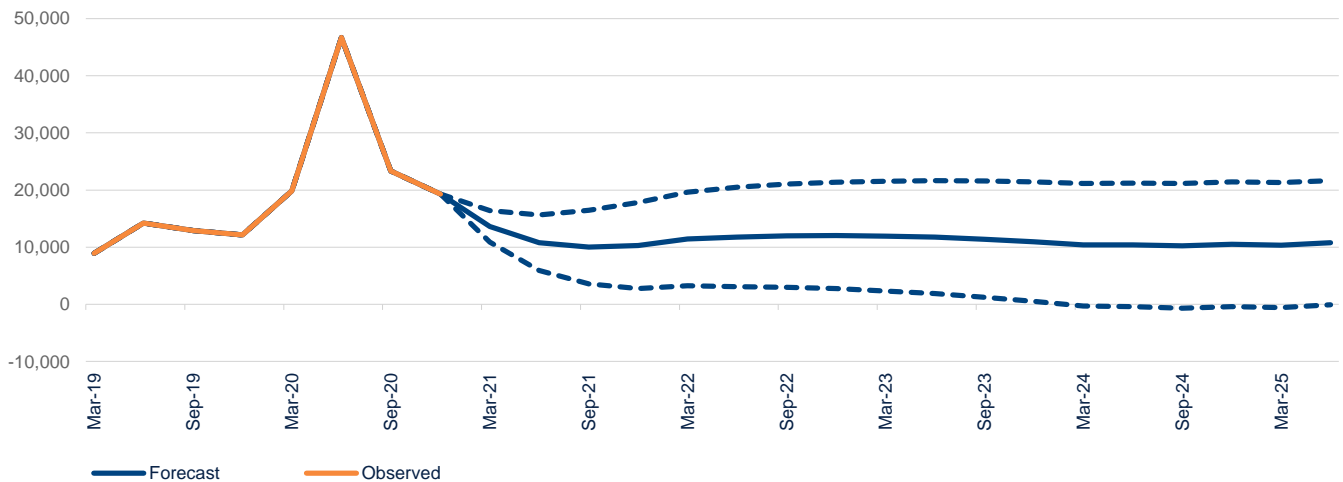
## 4. Prospects

The unprecedented accumulation of savings and its forced nature raise several questions about its economic impact in the short and medium term. This section discusses the possible change in the saving rate once the health emergency has been left behind and the impact that absorption of accumulated savings could have on consumption and investment.

### Savings

Based on the saving rate model and using BBVA Research's forecasts for explanatory variables, **the household saving flow will return to pre-pandemic levels by the end of 2021** (Figure 8). In any case, **the uncertainty regarding the rate of decline in the saving rate is exceptionally high**. First, in this exercise it has been assumed that the speed at which the imbalance would be corrected is the same as the one estimated up to 2019 (three to four quarters to correct the accumulated deviation). However, structural changes in the determinants of saving cannot be ruled out, or that the nature of the imbalances produced by the restrictions (of which there are no historical precedents) could cause excess savings to be corrected at a different rate. To capture this uncertainty, confidence intervals associated with the estimation of the imbalance correction parameter have been included in Figure 8. Although the most plausible scenario is to expect a return to normal for both savings and consumption, scenarios with a structurally different saving rate than those observed in the absence of COVID-19 cannot be ruled out.

Figure 8. **EXPECTED CHANGE IN HOUSEHOLD SAVING\*** (MILLIONS OF EUROS)



\*Prediction using the estimated savings model for the 1999–2019 period. Dashed lines represent the confidence interval at 95% of the estimation of the imbalance correction parameter.  
Source: BBVA Research

Moreover, **the possibility of consumers being forced to save due to health uncertainty cannot be ruled out.** In fact, in the first quarter of 2021, private consumption fell by 1% quarterly and the GVA of the sectors most affected by the pandemic in 2.5%. Thus, forced savings may have increased (Figure 7). The extension of some health restrictions may continue to generate such savings in the short term, although their contribution is expected to decrease as the pandemic abates.

Finally, **abrupt changes in consumption patterns generated by the pandemic could change consumer preferences**, which in turn could lead to a different equilibrium in the saving rate from now on<sup>14</sup>. In any case, these effects are difficult to predict given the exceptional nature of this crisis.

## Consumption

Another of the most significant unknowns is the impact that the absorption of savings accumulated during the pandemic may have on economic recovery, in particular on private consumption. **In order to estimate the potential impact of excess savings on expenditure in the coming months, an exercise has been carried out using the BBVA Research consumption model for the Spanish economy<sup>15</sup>.** In current projections (baseline scenario), additional savings are part of household financial wealth. Its impact on consumption therefore depends on the elasticity of expenditure to wealth, which is reduced in relation to consumption's sensitivity to income.<sup>16</sup> By contrast, **if savings are used as household income,<sup>17</sup> consumption could be up to 2% higher than in the**

14: Empirical evidence has shown that exposure to significant macroeconomic events results in permanent changes in agents' preferences and beliefs. For example, Malmendier y Shen 2019 found that consumers living in crises with high unemployment levels have persistently higher savings rates, even affecting their future incomes.

15: This is a model of error correction that includes gross disposable income, net financial wealth, real estate wealth, interest rates and consumer confidence as explanatory variables.

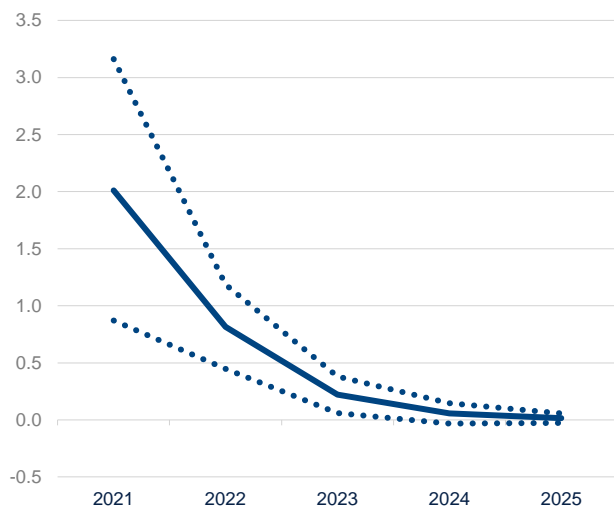
16: A 1% increase in disposable income increases household consumption by 0.2%, while the impact of 1% growth in net financial wealth is lower (0.03%).

17: In this exercise, we assumed that this extra income would be distributed proportionally throughout 2021.



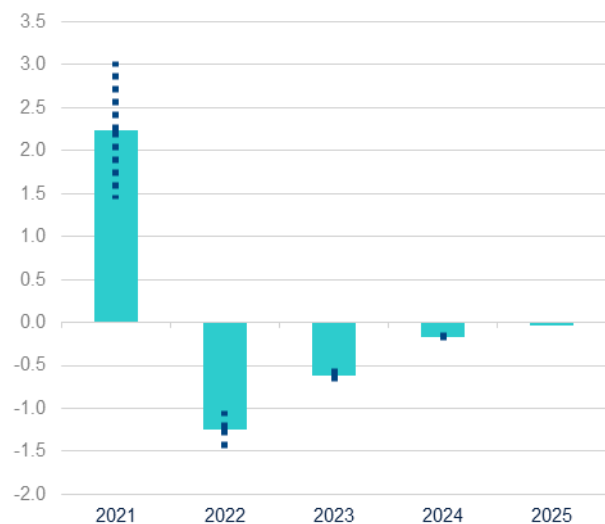
baseline scenario in 2021 and slightly less than 1% in 2022 (Figure 9). In year-on-year terms, this translates into additional consumption growth of around 2% in 2021 (Figure 10).

**FIGURE 9. ADDITIONAL HOUSEHOLD CONSUMPTION IN THE BASELINE SCENARIO IF ALL ADDITIONAL SAVINGS (EUR 60 BILLION) ARE PERCEIVED AS INCOME\* (PP)**



\*Using an error correction model for consumption. The dashed lines represent the confidence interval at 95% of the estimation of the error correction parameter.  
Source: BBVA Research

**Figure 10. ADDITIONAL YEAR-ON-YEAR GROWTH OF HOUSEHOLD CONSUMPTION IN THE BASELINE SCENARIO\* (PP)**



\*Using an error correction model for consumption. The error bars represent the confidence interval at 95% of the estimation of the error correction parameter.  
Source: BBVA Research

It must be reiterated that this would be the impact in the most extreme scenario, in which the entire savings are considered as income by households, and thus would be at a higher level. **Although uncertainty about the magnitude of the effect on consumption is notable, the composition of the fall in expenditure in 2020 and the distribution of savings by population groups may offer some hints.**

**The consumption that has been reduced most during the health crisis is leisure, tourism and restaurant services.**<sup>18</sup> While such expenditure may pick up when health conditions allow, it is unlikely to compensate for the 2020 decline in the short term. The recovery in purchases of services consumed in society is most likely to be gradual. In addition, there is a risk that the possible change of preferences of agents may lead to a permanent decrease in expenditure in these services.

**The health crisis has not only undermined the consumption of services enjoyed in society, but also the consumption of durable goods.** National accounting data indicate that purchases of durable goods in 2020 were 14% lower than in 2019. However, their recovery in the second part of the year was more intense than in other products. To the extent that developments in the financial situation allow, a rebound in the consumption of durable goods is expected in the coming months to partially offset the decline observed in 2020.

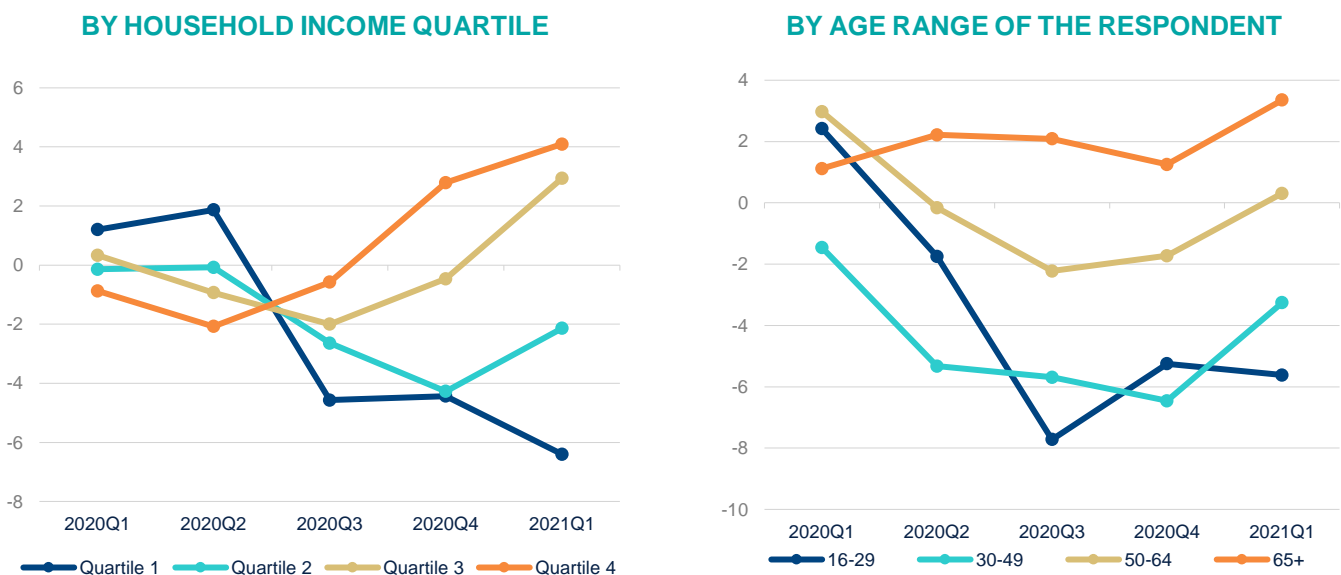
18: BBVA Research 2021 show that expenditure on travel, accommodation, transportation, fashion, restaurants, beauty and leisure fell at double-digit rates in 2020. On the contrary, essential products, such as food and health products, and those consumed in the home, such as ICT equipment and furniture, gained weight in the household consumption basket.

In relation to the income distribution of savings, **the evidence available<sup>19</sup> indicates that the highest incomes are those that claim to have increased their level of savings** (Figure 11). This is due, on the one hand, to expenditure in the sectors most affected by the constraints having a greater weight in the budgets of the households with the most income and, on the other, it is because the income of these agents has not deteriorated as much as that of the lower income quartiles.

**Heterogeneity by income level yields mixed signals about the impact of dissaving on consumption.** On the one hand, the Consumer Confidence Survey conducted by the European Commission indicates that higher incomes have significantly improved both their optimism about their financial situation over the next year and their intention to make major purchases. This outcome should help wealthy households, which have accumulated the most savings, to be more likely to increase their consumption over the coming months. However, empirical evidence indicates that the marginal propensity to consume decreases with income<sup>20</sup>, which acts in the opposite direction.

By age, **older people have reported a higher level of savings and a better financial situation than younger people during 2020** (Figure 11). According to Ampudia et al. 2020, the marginal propensity to consume of Spanish households is growing over time, which points to a greater translation of savings into private spending. However, the age of respondents is correlated with income, so the net effect of dissaving on consumption is ambiguous.

**FIGURE 11. CONSUMER CONFIDENCE SURVEY: FINANCIAL SITUATION OF THE HOUSEHOLD\***  
(BALANCE OF RESPONSES, VARIATION IN PP WITH RESPECT TO THE AVERAGE OF 2019.  
A VALUE GREATER THAN 0 INDICATES THAT THE HOUSEHOLD IS SAVING MORE THAN IN 2019)



\*Question: Which of the following statements would best describe your current home financial situation? Answers: We are saving a lot/We are saving a little/We are barely able to make it to the end of the month with our income/We have to resort to our savings/We are borrowing/Not sure/No reply.  
Source: BBVA Research based on European Commission data

19: Among others, see the results of surveys conducted by the European Commission European Commission 2021 for the EU, and the Bank of England Bank of England 2020 and Davenport et al. 2020 for the United Kingdom.

20: According to Ampudia et al. 2020, the marginal propensity to consume after an increase in wealth or income decreases with the level of income.

## Investment

Although activity has suffered due to the decline in consumption, higher savings could increase investment and thus boost economic growth in the short and long term. In economies with mature financial systems, excess resources accumulated by agents in the form of savings are channeled in the form of financing to investment projects of agents with resource deficits, both domestic and foreign. More productive investment projects offer a better risk-return balance and therefore attract most of the resources. Thus, even if the domestic economy does not offer high returns, the reduced uncertainty about domestic financial markets may bias investment flows to projects in the country where savings are generated. As a result, these funds translate into an accumulation of both material and intangible capital that contributes to the potential growth of the economy.

In fact, according to Boscá et al. 2021, some of the forced household savings have already materialized into investment in machinery and equipment. This, together with the credit boost, has prevented a further fall in investment during the crisis. Similarly, the positive evolution of mortgages seems to suggest that part of the accumulated savings could have been channeled towards real estate, given the low yield of financial assets.<sup>21</sup>

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21: Data provided by Notaries Statistical Information Center (Centro de Información Estadística de Notariado (CIEN)) show that, after falling 24% (y/y) during the first half of 2020, mortgages rose in the second semester (8% y/y) and in the first quarter of 2021 (+15% with respect the same period of 2019).

## 5. Conclusions

Household saving in Spain multiplied by 2.3 in 2020, despite the fall of 3.3% of its disposable income. Estimates show that the inability to consume as a result of the restrictions imposed by the epidemiological situation and the fear of contagion were the main factors responsible for the increase in household savings. The limitations on people's freedom of mobility and the opening to the public of commercial establishments caused expenditure on certain goods and services, such as those consumed in society and those associated with mobility, to decrease significantly, for a prolonged period of time and not compensated by the growth in demand for products that are not purchased in person. The uncertainty associated with the labor market explained the rest.

The absorption of excess savings accumulated in 2020 will boost household expenditure in the coming quarters, even though uncertainty is exceptionally high. In this regard, BBVA Research estimates suggest that household saving could return to pre-pandemic levels by the end of 2021 if both the response to their traditional determinants and the rate at which imbalances are absorbed remain unchanged. However, structural changes in its fundamentals cannot be ruled out, or that the nature of the oversavings caused by the restrictions (of which there is no historical precedent) may affect its absorption rate.

In the baseline scenario, additional savings are part of household financial wealth. Its impact on consumption therefore depends on the elasticity of expenditure to wealth, which is reduced in relation to consumption's sensitivity to income. If households interpret excess savings as temporary income, simulations suggest that their consumption could grow two percentage points more in 2021 than in the central scenario. If, on the contrary, the accumulated savings are maintained as part of household wealth, the impact on growth would be less, although their channeling through investment could contribute to growth in both the short and long term.

Although the definitive impact of dissavings on consumption is difficult to predict, the composition of the fall in expenditure in 2020 and the distribution of savings by population groups may shed a bit of light. First, given that the decline in household expenditure in 2020 was higher in services—which by definition are not packageable—than in goods, consumption thereof is likely to gradually recover to pre-crisis levels. In addition, there is a risk that consumer preferences have changed, which could have lasting consequences on the level of expenditure. Second, the increase in savings seems to have been concentrated among higher-income households, which, while declaring a growing intention to make significant purchases over the next year, have exhibited a comparatively low propensity to consume. This result contrasts with the increase in savings in families headed by someone over 64 years of age. Recent evidence suggests that their propensity to spend increases with age.

## 6. Appendix: Saving fundamentals model

According to BBVA Research 2013 and Pesaran y Shin 1999, it is assumed that the household saving rate (SR) follows a self-regressive distributed delay process (SRDD). In our case, the model consists of two equations: one in levels and another in the primary differences that include a term of correcting imbalances. To estimate this model, quarterly data from the Spanish economy have been used<sup>22</sup>. The equation in levels is as follows:

$$TA = cte + \theta_1 \ln RBDpc + \theta_2 TD + \theta_3 TICP + \theta_4 PR + \theta_6 \ln RIQFpc_{t-1} + \theta_7 \ln RIQIMpc_{t-1} + \theta_8 \ln Deudapc + errLP \quad (1)$$

where the explanatory variables are the natural logarithm of gross disposable income per capita ( $\ln RBDpc$ ), the dependency rate (DR), the official ECB interest rate (TICP), the risk premium (RP, difference between the ten-year bond rate and the official ECB interest rate), the natural logarithm of net financial wealth per capita in the previous period ( $\ln RIQFpc_{t-1}$ ), the natural logarithm of real estate wealth per capita in the previous period ( $\ln RIQIMpc_{t-1}$ ) and the public debt per inhabitant ( $\ln Deudapc$ )<sup>23</sup>. In addition, a constant is included in the regression.

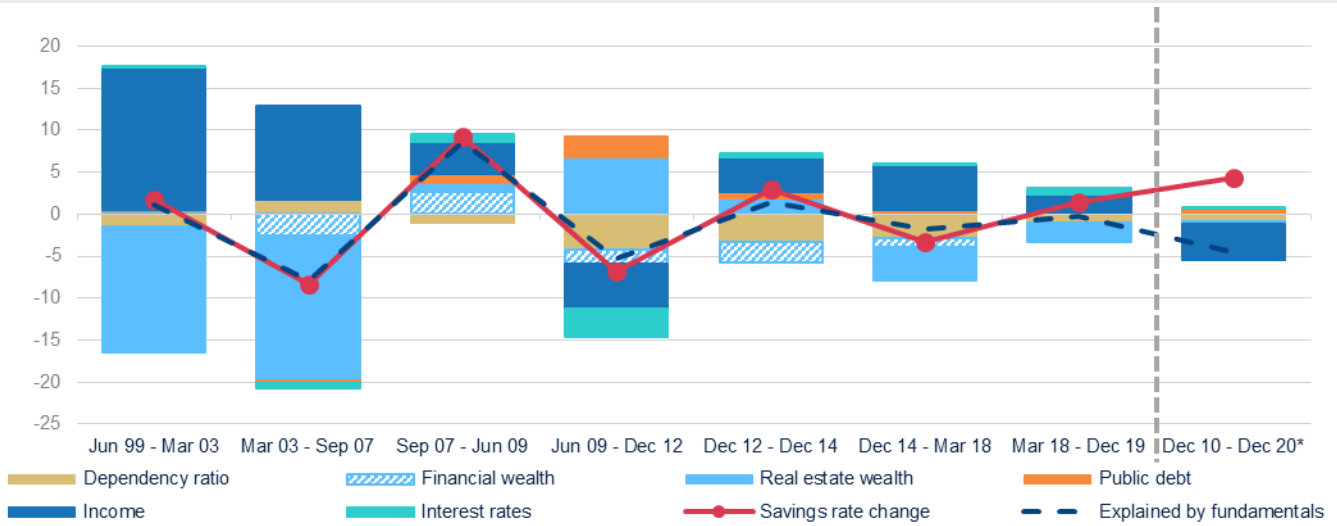
This equation captures the long-term behavior of the saving rate based on the fundamentals. The estimated coefficients for the 1999–2019 period are shown in Table 1. As expected, the saving rate is declining with the dependency rate and wealth (both financial and real estate) and rising with disposable income. With regard to short-term interest rates, the tests show a structural change in 2012. Thus, before that year, the saving rate decreased with the interest rates, suggesting that the negative effect on debtors dominates the positive effect on creditors (see Section 2). The coefficient has been positive since 2012. All of this suggests that this change is due to the introduction of unconventional monetary policies by the ECB, which have led to nominal interest rates at historical lows. Finally, the coefficient of public debt is positive, but reduced, suggesting that the Ricardian effects are limited.

Figure 12 shows the contributions of each period variable for the change in the saving rate according to equation 1. To make it easier to interpret, the sample has been divided into eight periods corresponding to the saving rate cycle. Beginning with the impact of income, it is noted that its sustained growth has contributed positively to saving, except during the Great Recession. For its part, the increase in real estate wealth during the first half of the 2000s put downward pressure on the saving rate. After the crisis, the collapse of the value of housing partially limited the drop in the saving rate in the 2009–2012 period. Since then, it has gradually recovered. The aging of the population has contributed increasingly to reducing savings. The effect of interest rates, as has already been mentioned, is mixed. Its greatest impact can be seen after the start of the financial crisis (September 2007 to June 2009) and with the euro crisis (June 2009 to December 2012). Finally, the Ricardian effects of public debt on savings are limited to a small contribution during the Great Recession.

22: Other studies have analyzed the determinants of the saving rate for several countries. See BBVA Research 2013 or Mody, Ohnsorge, y Sandri 2012.

23: All variables are expressed in nominal terms. As an alternative to this model, a variable version has been estimated in real terms that includes inflation. The results are similar, although the adjustment is worse.

Figure 12. **CONTRIBUTIONS TO THE CHANGE IN THE SAVING RATE EXPLAINED BY THE EQUATION IN LEVELS (%)**



\*The quarters of 2020 do not form part of the estimate.  
Source: BBVA Research

As Figure 12 illustrates, the difference in the saving rate explained by fundamentals (dashed black line) and observed (red line) is reduced for the estimated period. However, in a second step, an equation in differences is estimated that includes as regressors the primary differences in fundamentals, a term of correction of the imbalance of the equation in levels, and the primary difference of the unemployment gap, which estimates labor uncertainty (Ugap).<sup>24, 25</sup>

$$\Delta TA = \Phi[errLP]_{t-1} + \delta_1 \Delta \ln RBDpc + \delta_2 \Delta TICP + \delta_3 \Delta PR + \delta_5 \Delta \ln RIQpc + \delta_6 \Delta \ln RIQIMpc + \delta_7 \Delta \ln Deudapc + \delta_8 \Delta Ugap + resid. \quad (2)$$

The results of the estimate are shown in the right column of Table 1. The explanatory variables that were already present in the relationship in levels started with the same sign, and a significant precautionary effect (Ugap) was found. With regard to the correction of the imbalance, it is estimated that in each quarter between one quarter and one third of the error of the equation is absorbed in levels. The remainder of this equation is identified as forced savings.

24: The unemployment gap is calculated as the difference between the unemployment rate, including wage earners on the Temporary Redundancy Plan (ERTE) and the non-accelerating inflation rate of unemployment (NAIRU). It is estimated by a model of multivariate unobserved components, in which the series is decomposed in a structural and a cyclical terms, using Okun law and the Phillips curve with augmented expectations. The model uses Kalman filter and is estimated by maximum likelihood. See Fabiani and Mestre (2001).

25: In alternative versions of the model, the results of the Bank Lending Survey were included in order to capture the possible effects of the credit offer on savings. It also experimented with other variables that estimate uncertainty, such as the confidence indicators published by the European Commission. In none of these cases were the effects significant.

Table 1. **ESTIMATING THE DETERMINANTS OF THE HOUSEHOLD SAVING RATE, 1999Q1–2019Q4**

Equation in levels		Equation in primary differences	
Saving rate (%)		$\Delta$ Saving rate (%)	
DR	-2.10***	DLNRBD_PC	0.79***
Dependency rate	(0.27)	$\Delta$ (Gross disposable income)	(0.04)
LNRRBD_PC	0.73***	DTICP	-0.84***
Gross disposable income	(0.07)	$\Delta$ (ECB interest rate)	(0.22)
RP	-0.61***	DRP	-0.44***
Risk premium	(0.13)	$\Delta$ (Risk premium)	(0.16)
TICP_PRE12	-0.88***	DLNRIQ_PC	-0.02
ECB interest rate (before Dec 2012)	(0.11)	$\Delta$ (Net financial wealth)	(0.01)
TICP_POST12	1.85***	DLNRIQ_IM_PC	-0.10***
ECB interest rate (after 2012)	(0.43)	$\Delta$ (Real estate wealth)	(0.02)
LNRIQ_PC (t-1)	-0.07***	DLNRIQ_PC(t-1)	-0.02
Net financial wealth (delay)	(0.01)	$\Delta$ (Net financial wealth)	(0.01)
LNRIQ_IM_PC (t-1)	-0.25***	DLNRIQ_IM_PC(t-1)	-0.05**
Real estate wealth (delay)	(0.02)	$\Delta$ (Real estate wealth)	(0.02)
LNDEUDA_PC	0.04***	DLNDEUDA_PC	0.04
Public debt	(0.01)	Public debt	(0.03)
		DUGAP	0.33***
		$\Delta$ (Unemployment gap)	(0.12)
		LRRSDS(-1)	-0.28***
		Correction of imbalance	(0.08)
		<b>R<sup>2</sup></b>	<b>0.869</b>

\* p<0.01, \*\* p<0.05, \*\*\* p<0.01.

Standard errors between parentheses.

Income, wealth and debt variables are expressed in natural logarithms of euros per capita, interest rates and risk premium in percentage points.

Source: BBVA Research

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