Erasmus University Rotterdam – Erasmus School of Economics

Master Thesis International Economics

Precautionary Saving and the Covid-19 Crisis

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Abstract

In 2020, the year the Covid-19 pandemic started, household saving rates increased. During the same period consumer confidence decreased, which means that uncertainty increased. Theory on precautionary saving suggests that savings increase when uncertainty increases. This implies that the uncertainty associated with the pandemic would have caused the saving rate to increase. Using data on OECD countries for the years 1960-2021, this research aims at determining to what extent the increased uncertainty which originated from the pandemic has driven the increase in the saving rates. The results from this research suggest that the pandemic has indeed influenced saving behavior. This thesis presents some evidence that the so-called precautionary saving motive was important during the pandemic. Furthermore, the results suggest that forced saving as well as Ricardian saving were important drivers behind the increase in the household saving rates following the start of the pandemic.

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1. Introduction

For most people in the world the arrival of the Coronavirus came as a shock. As a way of containing the virus all countries took (lock-down) measures. These (lock-down) measures have resulted in job-losses and bankruptcies throughout Europe and worldwide. Governments reacted with strong discretionary measures that, together with the lower tax revenues, deteriorated their balances (Anderson, Bergamini, Brekelmans, Cameron, Darvas, Jiménez & Midões, 2020). Budgetary fiscal support varied widely across all countries in the world, see figure 1.

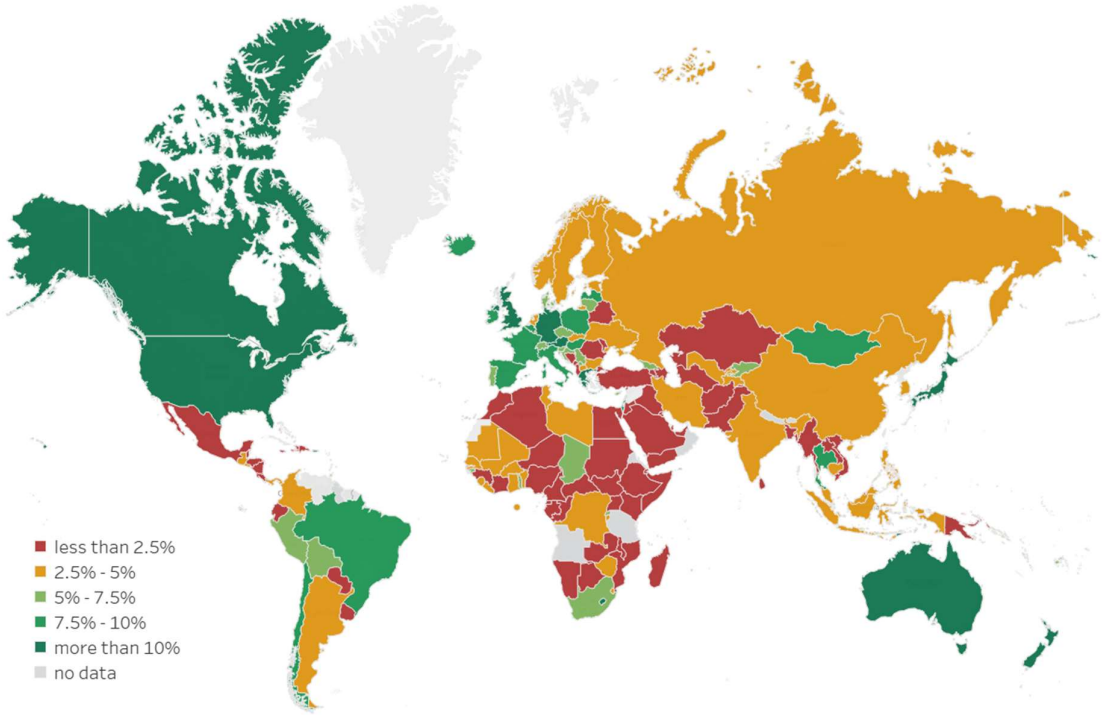

Figure 1 Support in Reaction to the Pandemic, in percentage of GDP
Source: IMF Fiscal Affairs Department, 2021.

During the same period the saving rate has increased. From figure 2 can be seen that the change in the saving rate as well as the change in consumer confidence was different across OECD countries. The country names corresponding to the country numbers in figure 2 can be found in table A1 in appendix A.

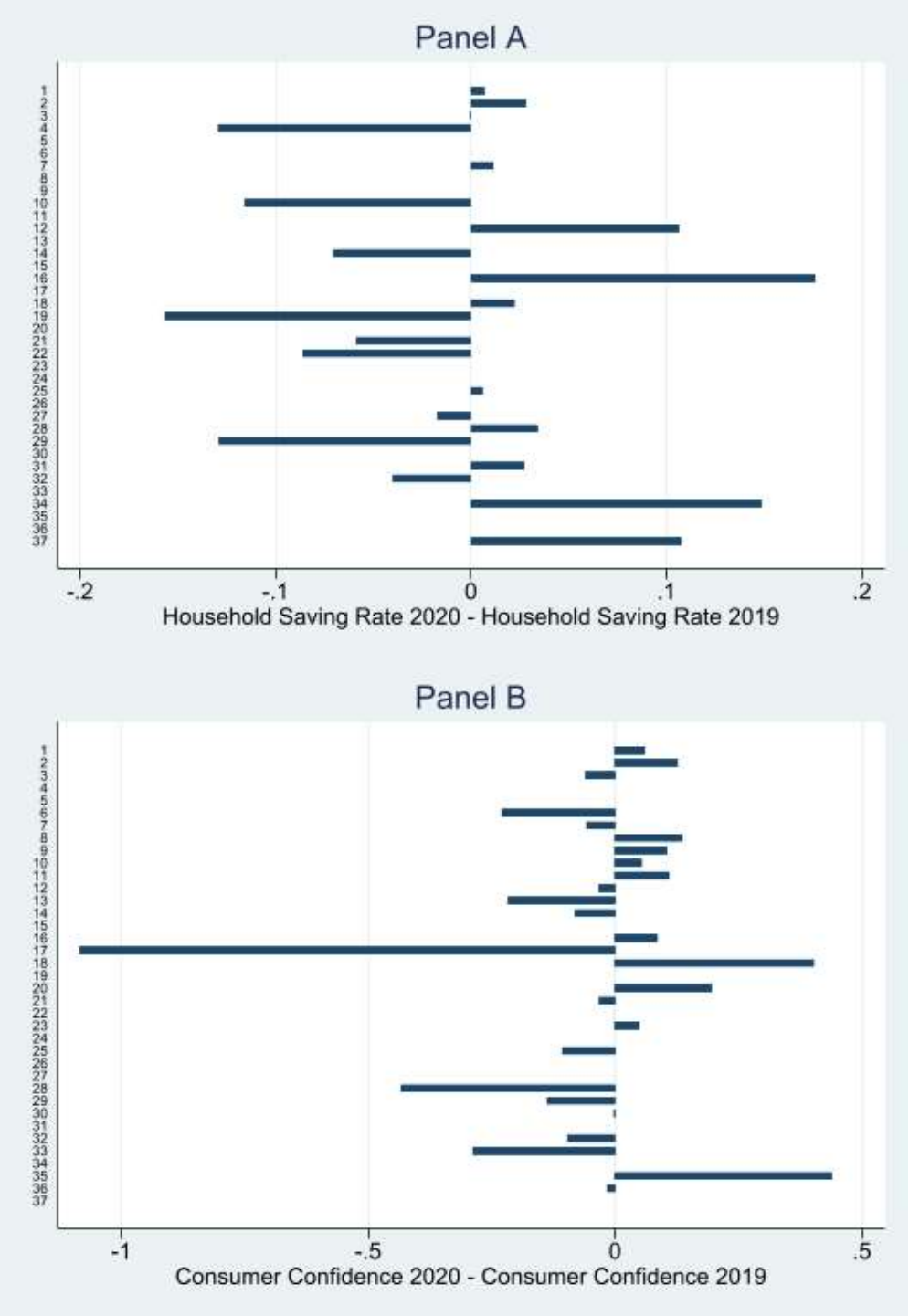

Figure 2 Changes between 2019 and 2020 in Household Saving Rate (Panel A) and Consumer Confidence (Panel B) for OECD countries

Mody, Ohnsorge & Sandri (2012) investigate how the uncertainty due to the Great Recession influenced precautionary savings and find that more than two-fifths of the increase in savings can be directly related to the increase in unemployment risk and GDP volatility. In the Great Recession the crisis of the financial markets had effects on the real economy whereas now, during the Covid-19 crisis there is only a direct effect on the real economy. Even though the uncertainty during the Great Recession was caused by an increase in unemployment risk and GDP volatility and the uncertainty now is directly caused by the Coronavirus, the mechanism behind the precautionary savings motive remains the same. From figure 3 can be seen that the saving rate as well as uncertainty increased at the time of the pandemic. In this graph uncertainty is proxied by consumer confidence which means that the graph for uncertainty has the opposite sign because an increase in uncertainty means a decrease in consumer confidence.

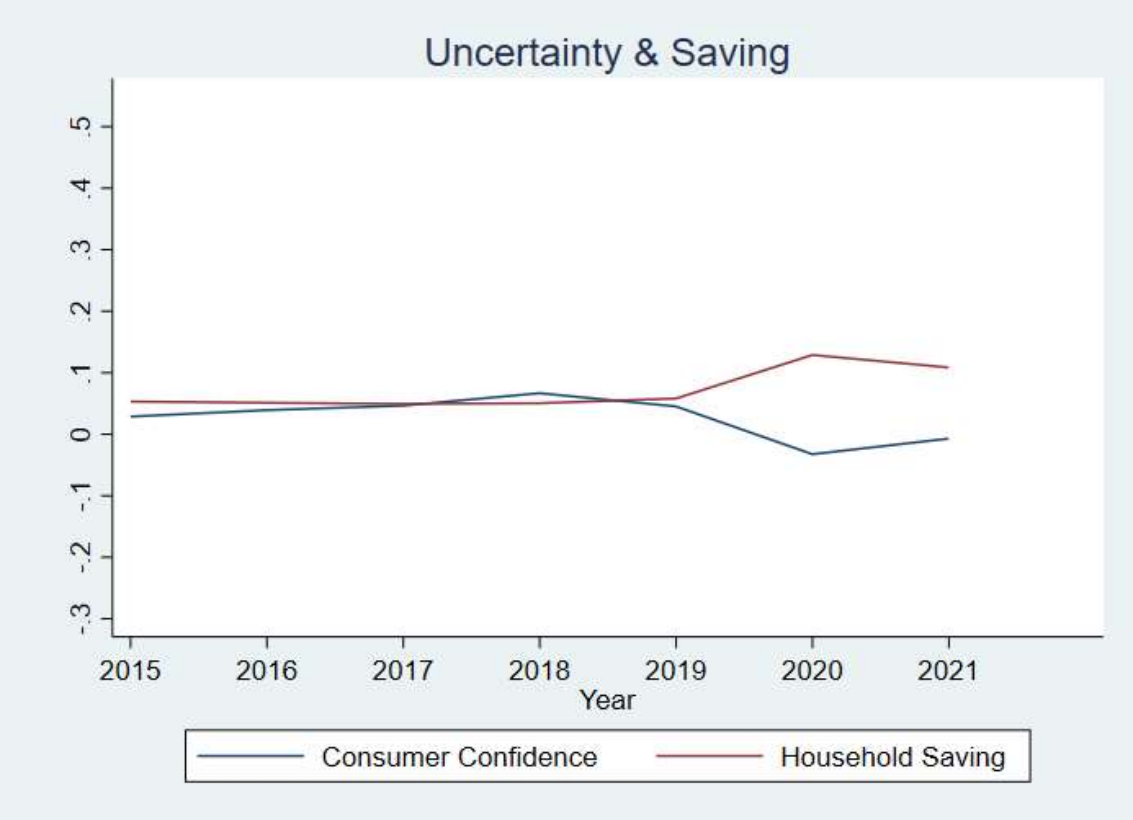

Figure 3 Consumer Confidence and Household Saving for OECD countries for the years 2015-2021, unweighted average

In this thesis I will investigate to what extent precautionary saving has increased as a result of the Covid-19 crisis. This is an interesting question because from the literature it seems that crises tend to increase uncertainty. During a crisis clarity of policy in combination with a strong commitment reduces precautionary savings and encourage consumers to start spending money again (Spilimbergo, Symansky, Blanchard & Cottarelli, 2009). This would mean that policymakers, that are concerned with the way that consumption and saving are affected by a crisis, should design fiscal policy so that this uncertainty is influenced.

For this research I will use panel data on the 37 OECD countries for the years 1960-2021. I will use information on savings and uncertainty for these countries to study whether precaution was an important driver behind the rise in saving rates following the Covid-19 pandemic. I will use fixed effect regression models to determine the importance of a precautionary saving motive on the increase in the saving rate. The importance of precaution as a driver behind the increase in the saving rate will be estimated by regressing uncertainty on the saving rate.

I will additionally study other possible drivers behind the increase in the saving rate, namely forced saving and Ricardian saving. Forced saving could have been an important determinant of the increase in the saving rate during the pandemic because due to the (lockdown-) measures taken by governments it would have been harder for people to spend their money. Ricardian saving is taken into account because there exist a theoretical foundation for the idea that people react to expansionary government policy by increasing their savings in anticipation of tax increases in the future.

Uncertainty seems to have increased simultaneously with the saving rate in 2020. I have found evidence that the arrival of the coronavirus has increased saving in the OECD countries that were included in the analysis. Furthermore I found some evidence for precaution as an

explanation for the increase in the saving rate following the arrival of the coronavirus. The results also suggest that the large increases in the government deficits have had an effect on the saving rate.

The remainder of this thesis is structured as follows. In section 2, I will provide an overview of the literature on precautionary saving in general as well as on precautionary saving during crises. Additionally I will discuss some recent papers that investigated precautionary saving during the Covid-19 pandemic. In section 3, I will explain the methodology that is followed in this research and section 4 describes the data that is used. Section 5 presents the results for the fixed effects regressions of uncertainty on savings and section 6 concludes.

2. Literature review

2.1 Precautionary Saving in General

2.1.1 Theory

The notion of precautionary saving originates in Friedman (1957) and Leland (1968) amongst others further formalized the idea. The combination of a positive third derivative of the utility function and uncertainty about future income reduces current consumption, and thus raises saving. This savings-motive is what is called the precautionary savings motive. The impact of precautionary saving on expected consumption growth depends on the variance of consumption growth and the coefficient of relative risk aversion (Romer, 2012).

Kimball (1990) argued that the convexity of marginal utility for households sets different households apart from each other. He thus sees this feature of the utility function as a specific characteristic of household preferences. This characteristic is what he has called prudence. In the presence of uncertainty about labor income, prudence is, according to Kimball, both a necessary and a sufficient condition for the prevalence of a precautionary

saving motive. From this he shows that the strength of the precautionary saving motive for households depends on their prudence.

Menegatti (2007) adds a new interpretation of the precautionary saving motive by proving mathematically that when agents experience uncertainty about their future income, they increase their saving in order to reduce the disutility caused by this uncertainty. This is because the risk aversion of consumers implies that uncertainty about future income causes disutility. If this disutility is a decreasing function of the consumption level, consumers will want to decrease this disutility by consuming less in the period without uncertainty, the present, and move consumption to the uncertain period, the future. Risk aversion is thus what drives the precautionary saving motive according to Menegatti.

2.1.2 Empirical Evidence for the Effect of Uncertainty on Savings

Sandmo distinguishes two types of uncertainty that influence savings. On the one hand, uncertainty about future income induces saving because people would want to protect themselves against negative income shocks in the future. On the other hand, the uncertain yield on capital investment increases the risk of holding capital. He thus concludes that reactions to income uncertainty should only be analyzed across individuals whose income is exogeneous. The incomes of individuals that are self-employed could be for an important part be determined by their past-savings (Sandmo, 1990).

Guerrieri, & Lorenzoni, (2017) estimate a precautionary savings model using data from the Health and Retirement Study (HRS). This dataset provides information on the subjective probabilities of job loss. The study focusses on respondents in the age-group 51-61 years. For the estimation of the precautionary-savings model the author includes information on three factors, namely wealth, household characteristics including permanent income and income

risk. The results from this analysis are consistent with theory. Respondents that are more risk-averse save more and respondents with lower rates of time-preference also save more. In line with the idea that households save in order to protect themselves against future negative income shocks the results show that respondents who expect their earnings to decline also save more. Because the coefficient of the variance of income from this analysis is positive and statistically significant the authors conclude that people who face a higher income risk save more and accumulate more wealth. This is in accordance with the theory on precautionary saving.

Guiso, Jappelli & Terlizzese (1992) also try to determine the importance of precaution as a motive for saving. They use information from the 1989 Italian Survey of Household Income and Wealth. In contrast to Guerrieri, & Lorenzoni, (2017) their measure of uncertainty is not expected unemployment but a measure that includes individuals expectations about future inflation.

2.2 Precautionary Saving During Crises

2.2.1. Great Depression (1929-1939)

Romer (1990) examines the link between the stock market crash of October 1929 and the fast economic decline in late 1929 and 1930. As an explanation the uncertainty hypothesis is put forward. The uncertainty hypothesis states that the stock market crash and the subsequent fluctuations on the stock markets cause people to feel uncertain about their future income. This uncertainty causes them to postpone spending on durable (non-reversable) goods. The intuition behind this decrease in consumer spending is as follows. If a consumer is deciding to buy a durable good that is available in various levels of quality the consumer would want to choose that quality of the good that matches the consumers income. If the future income is uncertain the consumer cannot be sure which quality of the good is appropriate and the consumer faces

the risk of choosing a level of quality that is either too modest or too luxurious. Thus a temporary rise in uncertainty increases the value of postponing consumption until consumers are more sure about their future income.

This story holds for consumers that do and do not hold stocks alike. The reason that extreme stock market fluctuations also influence consumers that do not hold stocks is that the stock market was thought to be an imperfect predictor of the real economy by consumers in the prewar economy. The analysis in this paper by Romer does not take into account the fact that if people actually knew that uncertainty tended to decrease consumption, they should not have been uncertain, but pessimistic. After all, a rational consumer would realize that if people would become uncertain about their future income they would decrease their consumption and thus cause a decline in output for sure. The reason that the author does not take this into account is because of the assumption that individuals in the inter-war era did not have a comprehensive idea about how the economy functions.

A crucial prediction of the uncertainty hypothesis is that following the stock market crash in 1929 there should be a large change in consumer spending. The analysis in the paper by Romer (1990) provides evidence in favor of the uncertainty hypothesis. It explains why consumer spending decreased as drastically as it did, even though monetary policy was quite loose, and thus provides an explanation for the onset of the Great Depression.

Given the relation between the Great Crash and the Great Depression, Romer includes an analysis on the question why consumers reacted less strong to the stock market crash of 1987. The results suggest that the reason for this is the different levels of stock price variability. In contrast to the 1929 crash the 1987 crash was followed by a period of much more moderate movements. This indicates that uncertainty was much more persistent following the Great

Crash than following the 18987 crash. The fact that after the 1987 crash consumers quickly began spending again is thus in line with the uncertainty hypothesis.

Building on the work of Romer (1990), Degorce & Monnet (2020) look at household saving decisions during the Great Depression. In contrast to the paper by Romer these authors investigate saving rates directly instead of investigating consumption. They use data on deposits in saving institutions in 22 countries in their analysis. Where Romer focusses on the stock market crash, these authors look at the banking crisis as the main inducing factor for precautionary saving. The authors find that the increase in precautionary savings during the Great Depression is similar to the increase in precautionary savings during the Great Recession that was found by Mody, Ohnsorge & Sandri (2012).

2.2.2. Great Recession (2007-2009)

Lugilde, Bande, & Riveiro (2018) analyze the existence of a precautionary savings motive using several measures of uncertainty about future income for Spain for the years 2008 and 2011. They chose these years for their research because this way they can evaluate the results before and after the Great Recession. Using the Spanish Survey of Household Finance they can construct several measures related to the possibility of continuing to receive labor income in the future as well as for household income variability. The results of the analysis suggest that there exists a precautionary savings motive among Spanish households. Furthermore, their evidence suggests that the unemployment rate is not a good uncertainty measure. Comparison of the 2008 and 2011 results shows that the magnitude of the recession has likely influenced underlying patterns in consumption and saving.

Mody et al. (2012) identify the arrival of the Great Recession after the preceding period of apparent tranquility, that is usually called the Great Moderation, as the source of increased

uncertainty. Relying on Romer (1990) the authors state that there are good reasons to believe that the rise in uncertainty and the rise in savings during the Great Recession were related. Their goal was to determine how the increased uncertainty during the Great Recession influenced consumption decisions.

Mody et al. use a model of precautionary savings in order to determine how uncertainty is expected to effect the saving rate. They first look at the impact of an unexpected increase in the unemployment rate and see that the model indeed predicts that the saving rate increases in response to higher unemployment. A reduction in wealth leads to the same reaction and higher investment risk shouldn't lead to a distinct impact on the saving rate. The authors test the predictions of the model in their econometric analysis.

Mody et al. use country level data to determine the importance of precautionary savings on the aggregate saving rates. They estimate the saving rate as a function of measures of income uncertainty, expected income growth, interest rate and wealth. The results of the estimation of the effect of uncertainty on the saving rate are consistent with the predictions of the model in various specifications. They use a fixed effects and random effects regression and several control variables. The results are also robust to the use of different measures of uncertainty. Another variable that, according to the model, should have influence on the saving rate is the wealth to income ratio. The results indicate, consistent with the predictions from the model, that household financial wealth is negatively correlated with the saving rate.

Because there are other determinants for the saving rate that are common in the literature that are incorporated in the model Mody et al. try to control for these variables by adding them to the regression. One variable they additionally to the baseline regression control for is government expenditure. Ricardian equivalence predicts that when government expenditures increase the saving rate increases because households realize that they will face

higher taxes in the future. They test for the existence of Ricardian equivalence in the data by controlling for the government fiscal balance. The estimates from this regression are consistence with the Ricardian equivalence hypothesis. This means a widening of the government deficit raises the household saving rate. Other factors the authors account for by adding it as a control is the demographic structure and the importance of credit controls. All the results from these regressions are consistent with standard saving theory and do not significantly alter the estimates for the effect of uncertainty on savings. They also check if global factors have an effect on the saving rate and find that household saving rates are affected by global conditions., but that domestic factors related to uncertainty are robust to controlling for global conditions. The fitted values from the model trace the evolution of the actual saving rates well.

2.2.3. Covid-19 Crisis (2020-present)

Dossche & Zlatanos (2020) investigate the reason for the rise in the saving rate in Europe in the first two quarters of 2020. They analyze data from the first half of 2020, which is the period just after the pandemic had reached Europe. They identify two main reasons for the increase in the saving rates. The first reason is that due to the lockdown measures taken by governments individuals were limited in their consumption. Saving that arose just because consumers were not able to buy the basket of goods and services they bought before these measures were in place are labelled forced saving by the authors. The other main driver of this increase in the saving rate could be precautionary saving. After all, if uncertainty about future income rises households are expected to save more.

Following Mody et al. (2012), Dossche & Zlatanos use a panel model to estimate the determinants of the saving rate. They include drivers of savings that are commonly used in the

literature and use household expectations about future employment to determinate the impact of precautionary savings on the saving behavior of households. Even though employment was sticky in the first half of 2020, expectations about employment revealed that people were anxious to see their income decrease. The results from the estimations suggest that the rise in expected unemployment accounts for a significant part of the increase in the saving rate, but that forced saving (measured as the unexplained residual from the regression) is the main driver behind the rise in savings. The increase in savings is mainly reflected in an increase in bank deposits, but lower credit flows, that are a direct effect of the lockdown measures, also seem to have played a role.

Vergara & Bonilla (2021) study the effects of risk and uncertainty shocks on the economy and more specifically, how risk and uncertainty shocks effect precautionary saving. In this theoretical work the authors show that different sources of uncertainty have different effects on precautionary saving. This is relevant information because during the current pandemic a lot of important variables that could provide information about the economic effects of the pandemic, like the length of the crisis and the strength of negative consumer confidence, are still unknown. Vergara & Bonilla (2021) provide insights for policymakers who aim to encourage economic recovery during the covid-19 pandemic.

In a FRB of New York Staff Report, Armantier, Koşar, Pomerantz, Skandalis, Smith, Topa & Van der Klaauw (2020) study the effect of the Covid-19 pandemic on economic expectations. They find that the pandemic led to an immediate and substantial increase in inflation uncertainty and inflation disagreement. The authors argue that the observed changes in inflation beliefs has amplified the precautionary savings motive. They find that an increase in the inflation uncertainty increases savings.

3. Methodology

3.1 Specification

Following Mody et al (2012) I will do a cross sectional analysis on OECD countries to determine what the contribution of precautionary saving was to the increase in the saving rate. In order to do this I will estimate the following baseline equation:

$$S_{it} = \mu + \beta U_{it} + \delta_i + X_{it}\gamma + \varepsilon_{it} \quad (1)$$

where S_{it} is the saving rate in country *i* in year *t*. The constant term μ may include forced saving. U_{it} is uncertainty proxied by consumer confidence for country *i* in year *t*. I will control for time-invariant country fixed effects, denoted by δ_i in equation 1. In addition I will add a vector of control variables with parameter γ. These control variables are the short-term interest rate, lagged household wealth, demographic characteristics and the government balance. The error term ε_{it} in this equation represents measurement error.

The dependent variable in this analysis is the household saving rate. I estimate this saving rate as a function of uncertainty. I will use an indicator for consumer confidence that is based on the consumer opinion surveys provided by the OECD. Other measures of uncertainty that I will employ are expectations about the economic situation expectations regarding inflation and unemployment.

There exist a clear theoretical and empirical foundation for the idea that there is a relationship between the interest rate and the saving rate. When the interest rate rises a consumer is better off saving more now in order to reap the benefits of the increased saving rate. A central prediction in finance is that the interest rate is determined by two competing forces related to uncertainty and consumer confidence (Hartzmark, 2016). Given that the interest rate is related to saving as well as uncertainty controlling for the interest in this household savings model is indispensable.

As a control variable I will also add household wealth. To circumvent reverse causality problems that arise from the relationship between household wealth and household savings I, following Mody et al. (2012), include this variable lagged by one year. This is an incomplete measure because this indicator only takes into account the value of dwellings, and not of other types of non-financial assets, but to my knowledge this is the best measure that is available on a cross-country comparable basis.

Because demographic structure of countries and its changes over time might have an effect on the saving rate as well as on the level of uncertainty I control for the share of elderly in the population. I have chosen to control for the share of elderly in the population because this is the demographic variable that is the most likely threat to the identification. According to Modigliani's life-cycle theory the elderly have lower saving rates because retirement income is lower than permanent income (Mody et al., 2012). Not controlling for the share of elderly in the population could then thus bias the results.

A last control variable that will be added to the regression is the government balance. I will add the government balance in order to account for the Ricardian saving motive. The Ricardian equivalence theorem states that when the government deficit increases people will increase their savings because they expect taxes to go up in the future. With the addition of the government balance in the regression it will be possible to determine whether this relationship exists in the data.

Country specific fixed effects will control for any unobservable country characteristics that influence the saving rate and the level of uncertainty at the same time.

A dummy indicating whether the year is 2020 is added in equation 2 in order to find the share of forced saving in the period of lockdown measures.

$$S_{it} = \mu + \beta U_{it} + \theta C_t + \delta_i + X_{it}\gamma + \varepsilon_{it} \quad (2)$$

In equation 2, the share of additional forced saving that originates in the pandemic is represented by the coefficient of the covid-dummy, θ. Additionally I will use the interaction terms with this dummy in equation 3, to see if household precautionary saving behavior was significantly different from other periods.

$$S_{it} = \mu + \beta U_{it} + \nu U_{it} C_t + \theta C_t + \delta_i + X_{it}\gamma + X_{it} C_t \xi + \varepsilon_{it} \quad (3)$$

Since saving in period t is dependent of saving in period t-1 I will, as a robustness check add the lag of the saving rate in equation 4.

$$S_{it} = \mu + \beta U_{it} + \alpha S_{it-1} + \delta_i + X_{it}\gamma + \varepsilon_{it} \quad (4)$$

3.2 Estimation Strategy

I will use a fixed effects regression model to obtain the estimates on which I will base my conclusion. I control for country, time-invariant characteristics in order to avoid that unobservable country specific factors bias my results. This is necessary because it could be that some cultural or structural characteristics of a country influence the household saving rate as well as the level of uncertainty. In order to account for possible autocorrelation and heteroskedasticity clustered standard errors are reported in the results.

3.3. Data

The data on the 37 OECD countries that is used in this research comes from the website of the OECD, datasets were downloaded from OECD.org or stats.OECD.org. From these 37 OECD countries Iceland is omitted because there are no datapoints available for

either uncertainty or household saving. For some variables that are used in the analysis not all years were available and so the forecast data provided by the OECD was used. From table A2 in appendix A can, for each variable for each country in this research, be seen for which years data points were available. A list of countries and country-codes is provided in table A1 in appendix A.

The savings variable that is used in the analysis is based on household saving rates and household saving rate forecasts provided by the OECD. In this dataset net household saving is defined as household net disposable income plus the adjustment for the change in pension entitlements less household consumption expenditure. The net household saving rate represents the total amount of net saving as a percentage of household disposable income. These data are compiled according to the 2008 System of National Accounts (SNA). Whenever the household saving rate was not available for a certain country in a certain year the household saving forecast, when available, was used instead. The household saving forecast is based on an assessment of the economic situation in individual countries and the world economy. This indicator is also measured as a percentage of household disposable income.

In this research I use the consumer opinion surveys provided by the OECD as a proxy for uncertainty. These indicators reflect consumer assessments of the current situation and expectations for the immediate future. These are monthly data which are converted into yearly data points for the purpose of this research. The main measure of uncertainty in this research is consumer confidence, which is a national indicator. The other indicators included in the consumer opinion surveys data are an indicator that reflects expectations about future inflation and an indicator that reflects expectations about the evolution of the economy. From figure B1 in appendix B can be seen that consumer confidence and the household saving rate

seem to move in the opposite direction during the pandemic for most countries under investigation.

The general government balance is defined as the balance of income and expenditure of a government. This measure includes capital income and capital expenditures. The indicator is measured as a percentage of GDP and the data are compiled according to the 2008 SNA.

Household wealth is included as household total net worth. This variable represents the total value of financial as well as non-financial assets minus the total value of outstanding liabilities of households. The following assets and liabilities are included: currency and deposits; debt securities; loans; equity and investment fund shares/units; insurance, pensions and standardized guarantee schemes; financial derivatives and employee stock options; and other accounts receivable/payable. The indicator is measured as a percentage of household net disposable income.

The demographic variable in the analysis is based on the share of the elderly in the population. This variable is defined as the amount of people of age 65 and divided by the total population and is thus measured as a percentage. Whenever data on the historical share of people over the age of 65 is missing for a country for a certain year data on the projection of the share of the elderly, when available, is used instead.

The evolution of the interest rate that is included in the analysis is the short-term interest rate. These are the rates at which short-term borrowing are effected between financial institutions or the rate at which short-term government paper is issued or traded in the market. Whenever information on the actual short-term interest rate for a country for a certain year is missing the short-term interest rate forecast, when available, is used. These forecast rates are

calculated through an overall assessment of the economic situation in individual countries and the world economy as a whole.

The unemployment rate is an indicator that is measured as the number of unemployed people as a percentage of the labor force and is seasonally adjusted. The unemployed are people who are without work, are available to work and have taken specific steps to find work. When unemployment is high, some people become discouraged and stop looking for employment. These people are then excluded from the labor force in this dataset. This indicator is based on labor force surveys and is comparable across countries. Whenever the actual unemployment rate for a country for a given year was unavailable the unemployment rate forecast, when available, is used. This forecast is the projected value for the number of unemployed people as a percentage of the labor force.

4. Results

4.1 Baseline Results

The results of the baseline model are presented in table 1. In column 1 are the results from a country fixed effects regression of the saving rate on the indicator of consumer confidence. In column 2 the interest rate is added as a control variable, in column 3 the first lag of household worth, in column 4 the share of elderly in the population and in column 5 the government balance. From column 1 can be seen that an increase in uncertainty (so a decrease in consumer confidence) increases the saving rate. Adding the interest rate reduces this effect. As predicted by consumer choice theory an increase in the interest rate increases the saving rate. The coefficient for uncertainty indicates that when uncertainty increases, saving increases. However, when more control variables are added, the coefficient keeps changing and becomes almost zero and insignificant when the government balance is also

controlled for. The results in table 1 suggest that there exist a statistically significant negative relationship between the household saving rate and the government balance which would imply that Ricardian Equivalence holds.

Table 1 Regression Results for the Relationship between Household Saving and Uncertainty

	(1)	(2)	(3)	(4)	(5)
Consumer Confidence	-0.039**	-0.029	-0.057**	-0.060*	-0.001
	(0.019)	(0.020)	(0.027)	(0.030)	(0.032)
Interest Rate		0.278**	-0.018	0.028	0.090
		(0.130)	(0.105)	(0.116)	(0.107)
Lagged household worth			0.014	0.012	0.014
			(0.008)	(0.011)	(0.012)
Share of Elderly				0.124	0.125
				(0.359)	(0.355)
Government Balance					-0.319***
					(0.080)
Constant	0.068***	0.054***	-0.002	-0.018	-0.034
	(0.000)	(0.007)	(0.032)	(0.040)	(0.038)
Observations	848	842	561	561	559
R-squared	0.012	0.098	0.062	0.064	0.103
Country Fixed Effects	YES	YES	YES	YES	YES

Notes: Standard errors are clustered by country, clustered standard errors are in parenthesis *** p<0.01, ** p<0.05, * p<0.1. Results based on different subsamples of OECD countries and years: (1) 29 countries, 1960-2021; (2) 29 countries, 1960-2021; (3) 26 countries 1995-2020; (4) 26 countries 1995-2020; (5) 26 countries 1995-2020.

In table 2 the results from the estimation of equation 2 are reported. This is the same regression as the baseline regression, but with the addition of the covid-dummy (indicating whether the year is 2020) in all specifications. Since the coefficient of this dummy is positive and statistically significant, these results suggest that the pandemic has increased the household saving rate. The share of saving that can be attributed to additional forced saving due to the pandemic is the coefficient of the covid-dummy in this regression. The results thus imply that forced saving has been an important factor for the rise in the household saving rate during the pandemic.

Table 2 Regression Results Including Covid-Dummy

	(1) saving	(2) saving	(3) saving	(4) saving	(5) saving
Consumer Confidence	-0.034**	-0.022	-0.049*	-0.049	-0.006
	(0.016)	(0.016)	(0.027)	(0.031)	(0.031)
Covid	0.071***	0.086***	0.053***	0.054***	0.039**
	(0.011)	(0.010)	(0.010)	(0.012)	(0.014)
Interest Rate		0.337**	0.011	0.006	0.062
		(0.132)	(0.105)	(0.112)	(0.103)
Lagged Household Worth			0.011	0.011	0.013
			(0.008)	(0.010)	(0.011)
Share of Elderly				-0.012	0.032
				(0.358)	(0.358)
Government Balance					-0.263***
					(0.089)
Constant	0.066***	0.049***	0.008	0.010	-0.013
	(0.000)	(0.007)	(0.032)	(0.042)	(0.042)
Observations	848	842	561	561	559
R-squared	0.095	0.216	0.113	0.113	0.124
Country Fixed Effects	YES	YES	YES	YES	YES

Notes: Standard errors are clustered by country, clustered standard errors are in parenthesis *** p<0.01, ** p<0.05, * p<0.1. Results based on different subsamples of OECD countries and years: (1) 29 countries, 1960-2021; (2) 29 countries, 1960-2021; (3) 26 countries 1995-2020; (4) 26 countries 1995-2020; (5) 26 countries 1995-2020.

In table 3 interaction effects with all variables are included in the model. These results show that there is no real interaction between the covid-dummy and any of the control variables. In all previous specifications the coefficient became very small and insignificant when the government balance was added to the model. In this specification however, there is an interaction effect between the covid-dummy and consumer confidence, significant at the 10% level, in the preferred specification with all control variables. This result suggests that during the pandemic, there is evidence for a precautionary saving motive. This would mean that the increased uncertainty that is associated with the pandemic has amplified the precautionary saving motive.

Table 3 Regression Results with Interaction Terms

	(1)	(2)	(3)	(4)	(5)
Consumer Confidence	-0.034**	-0.022	-0.050*	-0.049	-0.005
	(0.016)	(0.017)	(0.027)	(0.031)	(0.031)
Covid	0.069***	0.083***	0.028	0.070	-0.114
	(0.011)	(0.009)	(0.048)	(0.133)	(0.119)
Consumer Confidence x Covid	-0.034	-0.013	-0.125	-0.105	-0.316*
	(0.041)	(0.044)	(0.178)	(0.216)	(0.183)
Interest Rate		0.337**	0.011	0.005	0.063
		(0.131)	(0.107)	(0.114)	(0.108)
Interest Rate x Covid		-2.186	-0.844	-1.292	-1.344
		(2.200)	(1.288)	(2.039)	(1.871)
Lagged Household Worth			0.011	0.011	0.013
			(0.009)	(0.011)	(0.012)
Lagged Household Worth x Covid			0.003	0.002	0.007
			(0.007)	(0.009)	(0.008)
Share of Elderly				-0.018	0.029
				(0.376)	(0.379)
Share of Elderly x Covid				-0.192	0.517
				(0.494)	(0.440)
Government Deficit					-0.265***
					(0.090)
Government Deficit x Covid					0.313
					(0.362)
Constant	0.066***	0.049***	0.007	0.009	-0.014
	(0.000)	(0.007)	(0.033)	(0.042)	(0.042)
Observations	848	842	561	561	559
R-squared	0.096	0.218	0.114	0.115	0.128
Country Fixed Effects	YES	YES	YES	YES	YES

Notes: Standard errors are clustered by country, clustered standard errors are in parenthesis *** p<0.01, ** p<0.05, * p<0.1. Results based on different subsamples of OECD countries and years: (1) 29 countries, 1960-2021; (2) 29 countries, 1960-2021; (3) 26 countries 1995-2020; (4) 26 countries 1995-2020; (5) 26 countries 1995-2021.

4.2 Robustness Checks

4.2.1. Alternative Measures for Uncertainty

Using different measures of uncertainty yields mixed results. The results from the regressions with the alternative measures of uncertainty can be found in appendix B, in table

B1 up until B9. The results of these regressions are reported in table 4. In table 4 only the coefficient of interest, so the coefficient for uncertainty is reported. The results seem robust to the use of expectations about the future economic situation as an alternative for consumer confidence as a proxy for uncertainty.

On the other hand, expectations about future inflation or the unemployment rate produce very different results. This could be because expectations about inflation and unemployment are not suitable proxies for uncertainty in this context. Expectations about inflation indeed reflect the degree of uncertainty about the future. However, from a standard rational consumer perspective, when inflation is expected to increase a consumer should spend more money now and save less in order to limit welfare losses. This effect could act as a counterforce when looking at the relationship between expected inflation and household saving.

The unemployment rate might not be a good proxy for uncertainty in this context for another reason. The unemployment rate would only be a good proxy for uncertainty in this context if the unemployment rate reflects the uncertainty that people experience about their future employment. Since it is not clear that this is the case the unemployment rate might not capture uncertainty.

Table 4 Summary of Regression Coefficients for the Three Alternative Uncertainty Measures of Uncertainty

	(A)	(B)	©
Expectation Economic Situation	(1) -0.046**	(1) -0.023	(1) -0.024
	(2) -0.046**	(2) -0.021	(2) -0.021
	(3) -0.036*	(3) -0.025	(3) -0.024
	(4) -0.036*	(4) -0.024	(4) -0.024
	(5) -0.009	(5) -0.005	(5) -0.004
Expected Inflation	(1) 0.020	(1) 0.022	(1) 0.022
	(2) 0.013	(2) 0.010	(2) 0.011
	(3) -0.033	(3) -0.031	(3) -0.031*
	(4) -0.032*	(4) -0.033*	(4) -0.034*
	(5) -0.026	(5) -0.029	(5) -0.029*
Unemployment Rate	(1) -0.113	(1) -0.089	(1) -0.092
	(2) -0.095	(2) -0.064	(2) -0.066
	(3) -0.001	(3) -0.007	(3) -0.001
	(4) -0.019	(4) -0.022	(4) -0.027
	(5) -0.164	(5) -0.144	(5) -0.147

Notes: Reported coefficients are for β. Column (A): baseline regression (equation 1), column (B): regression including covid-dummy (equation 2), column (C): regression including covid-dummy and interaction effects (equation 3). Specification (1): fixed effects regression without control variables, specification (2): interest rate is added as a control variable, specification (3): the first lag of household worth is added as a control, specification (4): the share of elderly in the population is added as a control, specification (5): the government balance is added as a control variable. Standard errors are clustered by country. Clustered standard errors: *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

4.2.2. Inclusion of Lagged Saving

As is commonly found in the literature the household saving rate is significantly related to the lag of the household saving rate. The estimates from the regression of equation 3 are included in appendix C, table C1. The results from the specifications that include the covid-dummy are in table C2 and C3. These results are summarized in table 5. The addition of lagged savings in the diminishes the coefficients for consumer confidence. However, the coefficients for consumer confidence for the specification that includes the interest rate becomes statistically significant at the 5% level. Furthermore the coefficient doesn't change a

lot as a result of the addition of other control variables, suggesting that, when lagged saving is taken into account, there exist a negative relationship between uncertainty and saving.

Table 5 Summary of Regression Coefficients when Lagged Saving is Included

	(A)	(B)	(C)
Consumer Confidence	(1) -0.017**	(1) -0.013**	(1) -0.013**
	(2) -0.017**	(2) -0.012**	(2) -0.012**
	(3) -0.018	(3) -0.011	(3) -0.012
	(4) -0.021	(4) -0.013	(4) -0.013
	(5) 0.013	(5) 0.008	(5) 0.007

Notes: Coefficients for uncertainty proxied by consumer confidence. Column (A): baseline regression (equation 4), column (B): regression including covid-dummy, column (C): regression including covid-dummy and interaction effects. Specification (1): fixed effects regression without control variables, specification (2): interest rate is added as a control variable, specification (3): the first lag of household worth is added as a control, specification (4): the share of elderly in the population is added as a control, specification (5): the government balance is added as a control variable. Standard errors are clustered by country. Clustered standard errors: *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

5. Conclusion & Discussion

The three main drivers behind the increase of the saving rate following the start of the Covid-19 pandemic that I have identified in this research are precautionary saving, forced saving and Ricardian saving. In this research I have tried to determine whether the precautionary saving motive was an important determinant of the rise in the household saving rate that occurred simultaneously with the arrival of the Coronavirus. I have found some evidence that an increase in uncertainty has influenced saving behavior during the pandemic. I have found evidence that is consistent with the idea that increased uncertainty as a result of the pandemic has amplified the precautionary motive for saving. The results presented in this thesis also suggest that forced saving and Ricardian saving were important drivers behind the increase in the saving rate following the start of the pandemic.

The major shortcoming of this research is the limited data that was used. Since the pandemic is currently still going on and I have used yearly data my conclusions are built

upon a limited set of datapoints. The use of monthly or quarterly data would have already been better because there would have been more observations available during the pandemic. Unfortunately I was not able to gain access to this type of data. It would be good to repeat the analysis in this research at a later time when more data is available also for after the pandemic. Then, it would not be so problematic to use annual data instead of monthly or quarterly data.

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Appendix

Appendix A.

Table A1 List of Countries and Corresponding Country-Codes

Country-Code	Country
1	Australia
2	Austria
3	Belgium
4	Canada
5	Chile
6	Colombia
7	Czech Republic
8	Denmark
9	Estonia
10	Finland
11	France
12	Germany
13	Greece
14	Hungary
15	Iceland
16	Ireland
17	Israel
18	Italy
19	Japan
20	Korea
21	Latvia
22	Lithuania
23	Luxembourg
24	Mexico
25	Netherlands
26	New Zealand
27	Norway
28	Poland
29	Portugal
30	Slovak Republic
31	Slovenia
32	Spain
33	Sweden
34	Switzerland
35	Turkey
36	United Kingdom
37	United States

Table A2 Available Years per Variable for each Country

Country	Share_over65	Share_over65_forecast	Gov_def_perc_gdp	Short_interest_rate	Short_interest_rate_forecats	Household_saving_rate	Household_saving_rate_forecast	Confidence_national_indicator	Economic_sit_future_tendency	Inflation_future_tendency	Unemployment_rate	Unemployment_rate_forecast	Household_worth
1	1960-2018	2018-2020	1970-2019	1968-2019	1968-2022	1970-2019	1960-2021	1974-2021	1995-2021	1995-2021	1967-2019	1964-2022	1995-2019
2	1960-2018	2018-2020	1995-2020	1990-2019	1967-2022	1995-2019	1970-2021	1977-2021	1995-2021	1995-2021	1993-2019	1969-2022	1995-2019
3	1960-2018	2018-2020	1995-2020	1960-2019	1960-2022	1995-2019	1970-2021	1973-2021	1985-2021	1985-2021	1983-2019	1969-2022	1995-2019
4	1960-2018	2018-2020	1981-2020	1960-2019	1960-2022	1981-2020	1981-2021	-	-	-	1960-2019	1960-2022	1995-2020
5	1960-2018	2018-2020	2003-2019	1986-2019	1997-2022	2003-2018	-	2002-2021	2002-2021	-	1986-2019	1986-2022	2003-2018
6	1960-2018	2018-2020	2005-2019	1993-2019	1986-2022	2014-2018	-	2001-2021	2001-2021	2001-2021	2007-2019	2001-2022	-
7	1960-2018	2018-2020	1995-2020	1987-2019	1993-2022	1995-2019	1995-2021	1995-2021	1995-2021	1995-2021	1993-2019	1993-2022	1995-2019
8	1960-2018	2018-2020	1995-2020	1987-2019	1980-2022	1995-2020	1981-2021	1974-2021	1985-2021	1985-2021	1983-2019	1969-2022	1995-2019
9	1960-2018	2018-2020	1995-2020	1995-2019	1996-2022	1995-2019	1995-2021	1992-2021	1992-2021	1993-2021	1997-2019	1989-2022	1995-2018
10	1960-2018	2018-2020	1975-2020	2014-2019	1970-2022	1980-2020	1975-2021	1987-2021	1987-2021	1995-2021	1988-2019	1960-2022	1995-2019
11	1960-2018	2018-2020	1978-2020	1988-2019	1970-2022	1978-2019	-	1973-2021	1985-2021	1985-2021	1983-2019	1960-2022	1995-2019

12	1960-2018	2018-2020	1995-2020	1996-2019	1991-2022	1995-2020	1991-2021	1973-2021	1985-2021	1985-2021	1991-2019	1992-2022	1995-2019
13	1960-2018	2018-2020	1995-2020	1992-2019	1995-2022	2010-2019	-	1985-2021	1985-2021	1985-2021	1999-2019	1995-2022	1995-2018
14	1960-2018	2018-2020	1995-2020	1979-2019	1991-2022	1995-2019	1995-2021	1993-2021	1992-2021	1993-2021	1996-2019	1992-2022	1995-2018
15	1960-2018	2018-2020	1998-2020	1991-2019	1988-2022	-	-	-	-	-	2003-2019	1964-2022	-
16	1960-2018	2018-2020	1995-2020	2003-2019	1990-2022	1995-2019	1999-2021	1974-2021	1985-2021	1985-2021	1983-2019	1990-2022	-
17	1960-2018	2018-2020	1995-2019	1998-2019	1992-2022	-	-	2011-2021	2011-2021	-	1995-2019	1995-2022	1995-2019
18	1960-2018	2018-2020	1995-2020	1999-2019	1971-2022	1995-2020	1970-2021	1973-2021	1985-2021	1985-2021	1983-2019	1960-2022	-
19	1960-2018	2018-2020	2005-2018	1999-2019	1969-2022	1994-2018	1960-2021	-	-	-	1960-2019	1960-2022	1995-2018
20	1960-2018	2018-2020	1970-2019	1997-2019	1991-2022	2005-2019	1975-2021	1998-2021	2008-2021	2008-2021	1989-2019	1963-2022	2008-2019
21	1960-2018	2018-2020	1995-2020	1979-2019	1994-2022	1995-2019	1995-2021	2001-2021	2001-2021	2001-2021	1999-2019	1996-2022	1995-2018
22	1960-2018	2018-2020	1995-2020	1982-2019	1999-2022	2004-2019	1995-2021	2001-2021	2001-2021	2001-2021	1999-2019	2002-2022	1995-2018
23	1960-2018	2018-2020	1995-2020	1974-2019	1960-2022	1995-2018	2008-2021	2002-2021	2002-2021	2002-2021	1983-2019	1985-2022	1995-2018
24	1960-2018	2018-2020	2003-2019	1992-2019	1990-2022	2003-2019	-	2001-2021	2001-2021	-	1987-2019	1991-2022	2003-2019
25	1960-2018	2018-2020	1995-2020	1988-2019	1960-2022	1995-2019	1980-2021	1973-2021	1985-2021	1985-2021	1983-2019	1960-2022	1995-2018

26	1960-2018	2018-2020	1986-2019	2002-2019	1974-2022	1998-2018	1986-2021	-	-	-	1960-2019	1960-2022	-
27	1960-2018	2018-2020	1995-2020	1999-2019	1970-2022	1978-2020	1978-2021	-	-	-	1989-2019	1972-2022	1995-2018
28	1960-2018	2018-2020	1995-2020	1977-2019	1992-2022	1999-2019	1995-2021	2001-2021	2001-2021	2001-2021	1997-2019	1993-2022	1995-2018
29	1960-2018	2018-2020	1995-2020	1982-2019	1970-2022	1995-2020	-	1986-2021	1986-2021	1986-2021	1983-2019	1960-2022	1995-2018
30	1960-2018	2018-2020	1995-2020	1974-2019	1996-2022	1995-2020	1995-2021	1999-2021	1999-2021	1999-2021	1998-2019	1994-2022	1995-2019
31	1960-2018	2018-2020	1995-2020	-	2002-2022	1995-2019	1995-2021	1996-2021	1996-2021	1996-2021	1996-2019	1996-2022	1995-2019
32	1960-2018	2018-2020	1995-2020	1960-2019	1977-2022	1995-2019	1964-2021	1986-2021	1986-2021	1986-2021	1987-2019	1977-2022	1995-2018
33	1960-2018	2018-2020	1995-2020	1986-2019	1982-2022	1995-2020	1980-2021	1995-2021	1995-2021	1995-2021	1983-2019	1960-2022	2005-2019
34	1960-2018	2018-2020	1995-2019	2016-2019	1974-2022	1995-2019	1990-2021	-	-	-	2010-2019	1975-2022	-
35	1960-2018	2018-2020	2009-2019	-	2002-2022	-	-	2004-2021	2003-2021	2003-2021	2005-2019	1960-2022	-
36	1960-2018	2018-2020	1990-2020	1984-2019	1978-2022	1995-2019	-	1974-2021	1985-2021	1985-2021	1983-2019	1960-2022	1995-2019
37	1960-2018	2018-2020	1970-2019	1965-2019	1960-2022	1970-2018	1960-2021	1960-2021	1978-2021	1978-2021	1960-2019	1960-2022	1995-2018

Appendix B

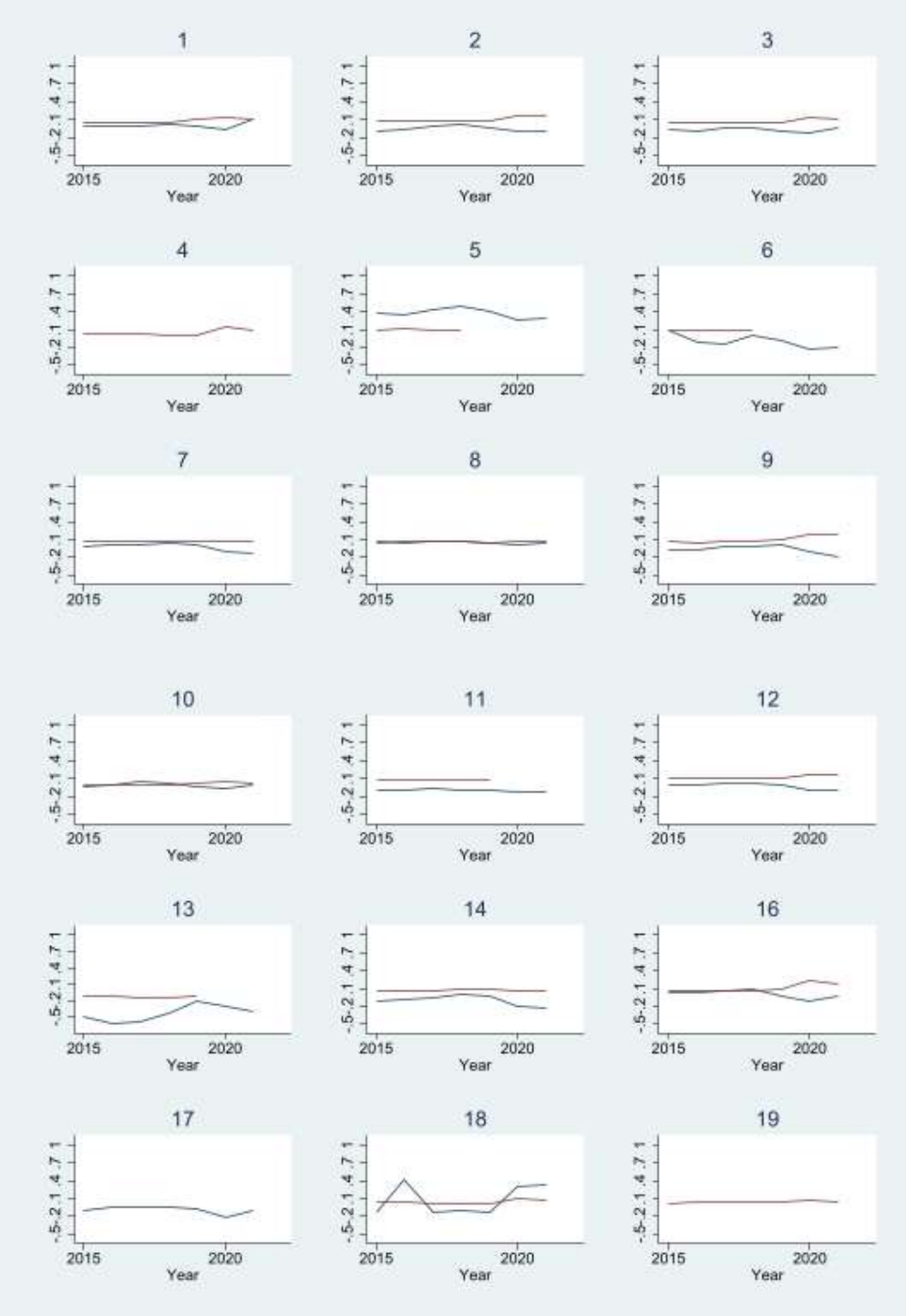

Figure B1 Consumer Confidence and Household Saving for OECD countries (except Iceland) for the years 2015-2021

Appendix C

Table C1 Baseline Regression Results for the Relationship between Household Saving and Uncertainty with Expectations about the Economic Situation as Proxy for Uncertainty

	(1)	(2)	(3)	(4)	(5)
Expectation Economic Situation	-0.046**	-0.046**	-0.036*	-0.036*	-0.009
	(0.017)	(0.018)	(0.018)	(0.018)	(0.015)
Interest Rate		0.136	-0.020	0.009	0.088
		(0.113)	(0.106)	(0.117)	(0.108)
Lagged household worth			0.013	0.012	0.014
			(0.008)	(0.010)	(0.011)
Share of Elderly				0.079	0.127
				(0.333)	(0.340)
Government Balance					-0.306***
					(0.074)
Constant	0.055***	0.050***	-0.002	-0.011	-0.034
	(0.001)	(0.004)	(0.032)	(0.037)	(0.037)
Observations	741	735	567	561	559
R-squared	0.024	0.044	0.057	0.058	0.104
Country Fixed Effects	YES	YES	YES	YES	YES

Notes: Standard errors are clustered by country, clustered standard errors are in parenthesis *** p<0.01, ** p<0.05, * p<0.1. Results based on different subsamples of OECD countries and years: (1) 29 countries, 1978-2021; (2) 29 countries, 1978-2021; (3) 26 countries 1995-2020; (4) 26 countries 1995-2020; (5) 26 countries 1995-2020.

Table C2 Regression Results for the Relationship between Household Saving and Uncertainty with Expectations about the Economic Situation as Proxy for Uncertainty Including the Covid-Dummy

	(1)	(2)	(3)	(4)	(5)
Expectation Economic Situation	-0.023	-0.021	-0.025	-0.024	-0.005
	(0.015)	(0.016)	(0.018)	(0.019)	(0.016)
Covid	0.074***	0.082***	0.052***	0.053***	0.039**
	(0.010)	(0.009)	(0.011)	(0.012)	(0.015)
Interest Rate		0.198*	0.008	-0.010	0.061
		(0.114)	(0.105)	(0.111)	(0.104)
Lagged Household Worth			0.010	0.011	0.013
			(0.008)	(0.010)	(0.011)
Share of Elderly				-0.051	0.031
				(0.333)	(0.345)
Government Balance					-0.266***
					(0.085)
Constant	0.055***	0.046***	0.010	0.016	-0.013
	(0.001)	(0.004)	(0.032)	(0.039)	(0.042)
Observations	741	735	561	561	559
R-squared	0.137	0.180	0.104	0.105	0.124
Country Fixed Effects	YES	YES	YES	YES	YES

Notes: Standard errors are clustered by country, clustered standard errors are in parenthesis *** p<0.01, ** p<0.05, * p<0.1. Results based on different subsamples of OECD countries and years: (1) 29 countries, 1978-2021; (2) 29 countries, 1978-2021; (3) 26 countries 1995-2020; (4) 26 countries 1995-2020; (5) 26 countries 1995-2020.

Table C3 Regression Results for the Relationship between Household Saving and Uncertainty with Expectations about the Economic Situation as Proxy for Uncertainty Including the Covid-Dummy and its Interaction Terms

	(1)	(2)	(3)	(4)	(5)
Expectation Economic Situation	-0.024	-0.021	-0.024	-0.024	-0.004
	(0.015)	(0.016)	(0.018)	(0.019)	(0.016)
Covid	0.081***	0.093***	0.008	0.066	-0.085
	(0.011)	(0.011)	(0.061)	(0.126)	(0.129)
Consumer Confidence x Covid	0.031	0.063	-0.105	-0.092	-0.184
	(0.045)	(0.053)	(0.137)	(0.146)	(0.143)
Interest Rate		0.200*	0.009	-0.011	0.065
		(0.114)	(0.106)	(0.112)	(0.108)
Interest Rate x Covid		-2.636	-0.654	-1.214	-1.766
		(2.058)	(1.444)	(1.894)	(1.831)
Lagged Household Worth			0.010	0.011	0.013
			(0.009)	(0.011)	(0.012)
Lagged Household Worth x Covid			0.004	0.003	0.005
			(0.007)	(0.008)	(0.008)
Share of Elderly				-0.054	0.031
				(0.350)	(0.367)
Share of Elderly x Covid				-0.264	0.303
				(0.456)	(0.462)
Government Deficit					-0.268***
					(0.085)
Government Deficit x Covid					0.162
					(0.334)
Constant	0.054***	0.046***	0.009	0.016	-0.014
	(0.001)	(0.004)	(0.033)	(0.039)	(0.042)
Observations	741	735	561	561	559
R-squared	0.138	0.183	0.106	0.106	0.128
Country Fixed Effects	YES	YES	YES	YES	YES

Notes: Standard errors are clustered by country, clustered standard errors are in parenthesis *** p<0.01, ** p<0.05, * p<0.1. Results based on different subsamples of OECD countries and years: (1) 29 countries, 1978-2021; (2) 29 countries, 1978-2021; (3) 26 countries 1995-2020; (4) 26 countries 1995-2020; (5) 26 countries 1995-2020.

Table C4 Baseline Regression Results for the Relationship between Household Saving and Uncertainty with Expectations about Inflation as Proxy for Uncertainty

	(1)	(2)	(3)	(4)	(5)
Expectations about Inflation	0.020	0.013	-0.033	-0.032*	-0.026
	(0.041)	(0.037)	(0.020)	(0.019)	(0.016)
Interest Rate		0.122	0.024	0.026	0.112
		(0.112)	(0.090)	(0.117)	(0.116)
Lagged household worth			0.014*	0.014	0.016
			(0.008)	(0.010)	(0.011)
Share of Elderly				0.005	0.104
				(0.330)	(0.343)
Government Balance					-0.317***
					(0.083)
Constant	0.051***	0.048***	-0.001	-0.001	-0.035
	(0.010)	(0.011)	(0.033)	(0.039)	(0.041)
Observations	700	694	530	530	528
R-squared	0.005	0.020	0.051	0.051	0.108
Country Fixed Effects	YES	YES	YES	YES	YES

Notes: Standard errors are clustered by country, clustered standard errors are in parenthesis *** p<0.01, ** p<0.05, * p<0.1. Results based on different subsamples of OECD countries and years: (1) 27 countries, 1978-2021; (2) 27 countries, 1978-2021; (3) 24 countries 1995-2020; (4) 24 countries 1995-2020; (5) 24 countries 1995-2020.

Table C5 Regression Results for the Relationship between Household Saving and Uncertainty with Expectations about Inflation as Proxy for Uncertainty Including the Covid-Dummy

	(1)	(2)	(3)	(4)	(5)
Expectations about Inflation	0.022	0.010	-0.031	-0.033*	-0.029*
	(0.040)	(0.036)	(0.020)	(0.018)	(0.017)
Covid	0.078***	0.085***	0.057***	0.058***	0.041**
	(0.010)	(0.010)	(0.010)	(0.011)	(0.015)
Interest Rate		0.196	0.054	0.009	0.082
		(0.116)	(0.092)	(0.113)	(0.111)
Lagged Household Worth			0.011	0.013	0.015
			(0.008)	(0.010)	(0.011)
Share of Elderly				-0.132	-0.007
				(0.325)	(0.347)
Government Balance					-0.261**
					(0.098)
Constant	0.048***	0.043***	0.010	0.027	-0.010
	(0.010)	(0.011)	(0.033)	(0.041)	(0.046)
Observations	700	694	530	530	528
R-squared	0.145	0.181	0.110	0.112	0.132
Country Fixed Effects	YES	YES	YES	YES	YES

Notes: Standard errors are clustered by country, clustered standard errors are in parenthesis *** p<0.01, ** p<0.05, * p<0.1. Results based on different subsamples of OECD countries and years: (1) 27 countries, 1978-2021; (2) 27 countries, 1978-2021; (3) 24 countries 1995-2020; (4) 24 countries 1995-2020; (5) 24 countries 1995-2020.

Table C6 Regression Results for the Relationship between Household Saving and Uncertainty with Expectations about Inflation as Proxy for Uncertainty Including the Covid-Dummy and its Interaction Terms

	(1)	(2)	(3)	(4)	(5)
Expectations about Inflation	0.022	0.011	-0.031	-0.034*	-0.029*
	(0.040)	(0.035)	(0.020)	(0.018)	(0.016)
Covid	0.088***	0.089***	-0.004	0.036	-0.295
	(0.024)	(0.021)	(0.063)	(0.113)	(0.326)
Expectations about Inflation x Covid	-0.037	-0.024	0.129	0.104	0.324
	(0.074)	(0.069)	(0.102)	(0.096)	(0.266)
Interest Rate		0.197	0.053	0.007	0.084
		(0.116)	(0.093)	(0.114)	(0.116)
Interest Rate x Covid		-2.085	-1.987	-2.097	-3.195
		(1.760)	(1.765)	(1.827)	(2.004)
Lagged Household Worth			0.011	0.013	0.015
			(0.009)	(0.011)	(0.012)
Lagged Household Worth x Covid			0.004	0.002	0.015
			(0.009)	(0.010)	(0.016)
Share of Elderly				-0.138	-0.009
				(0.341)	(0.369)
Share of Elderly x Covid				-0.099	0.696
				(0.399)	(0.789)
Government Deficit					-0.262**
					(0.098)
Government Deficit x Covid					-0.435
					(0.496)
Constant	0.048***	0.043***	0.009	0.027	-0.011
	(0.010)	(0.011)	(0.035)	(0.041)	(0.046)
Observations	700	694	530	530	528
R-squared	0.145	0.183	0.113	0.114	0.136
Country Fixed Effects	YES	YES	YES	YES	YES

Notes: Standard errors are clustered by country, clustered standard errors are in parenthesis *** p<0.01, ** p<0.05, * p<0.1. Results based on different subsamples of OECD countries and years: (1) 27 countries, 1978-2021; (2) 27 countries, 1978-2021; (3) 24 countries 1995-2020; (4) 24 countries 1995-2020; (5) 24 countries 1995-2020.

Table C7 Baseline Regression Results for the Relationship between Household Saving and Uncertainty with the Unemployment Rate as Proxy for Uncertainty

	(1)	(2)	(3)	(4)	(5)
Unemployment Rate	-0.113	-0.095	-0.001	-0.019	-0.164
	(0.150)	(0.143)	(0.140)	(0.133)	(0.157)
Interest Rate		0.276**	-0.052	-0.103	0.060
		(0.127)	(0.095)	(0.130)	(0.108)
Lagged household worth			0.008	0.010	0.013
			(0.008)	(0.010)	(0.010)
Share of Elderly				-0.151	0.042
				(0.341)	(0.305)
Government Balance					-0.404***
					(0.101)
Constant	0.080***	0.062***	0.020	0.040	-0.004
	(0.011)	(0.008)	(0.037)	(0.051)	(0.038)
Observations	1164	1126	655	655	643
R-squared	0.004	0.072	0.018	0.021	0.110
Country Fixed Effects	YES	YES	YES	YES	YES

Notes: Standard errors are clustered by country, clustered standard errors are in parenthesis *** p<0.01, ** p<0.05, * p<0.1. Results based on different subsamples of OECD countries and years: (1) 34 countries, 1960-2021; (2) 34 countries, 1960-2021; (3) 29 countries 1995-2020; (4) 29 countries 1995-2020; (5) 29 countries 1995-2020.

Table C8 Regression Results for the Relationship between Household Saving and Uncertainty with the Unemployment Rate as Proxy for Uncertainty Including the Covid-Dummy

	(1)	(2)	(3)	(4)	(5)
Unemployment Rate	-0.089	-0.064	0.007	-0.022	-0.144
	(0.153)	(0.142)	(0.137)	(0.128)	(0.160)
Covid	0.065***	0.083***	0.062***	0.065***	0.038**
	(0.012)	(0.009)	(0.011)	(0.012)	(0.016)
Interest Rate		0.328**	-0.024	-0.105	0.040
		(0.128)	(0.096)	(0.120)	(0.107)
Lagged Household Worth			0.005	0.008	0.012
			(0.008)	(0.009)	(0.009)
Share of Elderly				-0.245	-0.024
				(0.324)	(0.321)
Government Balance					-0.353***
					(0.116)
Constant	0.076***	0.055***	0.029	0.062	0.011
	(0.011)	(0.009)	(0.036)	(0.047)	(0.042)
Observations	1164	1126	655	655	643
R-squared	0.052	0.152	0.072	0.079	0.126
Country Fixed Effects	YES	YES	YES	YES	YES

Notes: Standard errors are clustered by country, clustered standard errors are in parenthesis *** p<0.01, ** p<0.05, * p<0.1. Results based on different subsamples of OECD countries and years: (1) 34 countries, 1960-2021; (2) 34 countries, 1960-2021; (3) 29 countries 1995-2020; (4) 29 countries 1995-2020; (5) 29 countries 1995-2020.

Table C9 Regression Results for the Relationship between Household Saving and Uncertainty with the Unemployment Rate as Proxy for Uncertainty Including the Covid-Dummy and its Interaction Terms

	(1)	(2)	(3)	(4)	(5)
Unemployment Rate	-0.092	-0.066	0.001	-0.027	-0.147
	(0.153)	(0.142)	(0.139)	(0.130)	(0.161)
Covid	0.036	0.060**	0.006	0.035	-0.098
	(0.026)	(0.025)	(0.039)	(0.089)	(0.148)
Consumer Confidence x Covid	0.451	0.346	0.875***	0.879***	0.767*
	(0.343)	(0.326)	(0.307)	(0.278)	(0.416)
Interest Rate		0.329**	-0.025	-0.105	0.043
		(0.128)	(0.097)	(0.121)	(0.109)
Interest Rate x Covid		-1.630	0.503	0.430	-0.648
		(1.703)	(1.308)	(1.517)	(1.271)
Lagged Household Worth			0.005	0.008	0.011
			(0.009)	(0.010)	(0.010)
Lagged Household Worth x Covid			0.001	-0.001	-0.000
			(0.008)	(0.009)	(0.007)
Share of Elderly				-0.244	-0.020
				(0.330)	(0.334)
Share of Elderly x Covid				-0.093	0.390
				(0.441)	(0.670)
Government Deficit					-0.349***
					(0.117)
Government Deficit x Covid					-0.181
					(0.291)
Constant	0.077***	0.055***	0.031	0.063	0.012
	(0.011)	(0.009)	(0.038)	(0.047)	(0.043)
Observations	1164	1126	655	655	643
R-squared	0.054	0.154	0.076	0.083	0.129
Country Fixed Effects	YES	YES	YES	YES	YES

Notes: Standard errors are clustered by country, clustered standard errors are in parenthesis *** p<0.01, ** p<0.05, * p<0.1. Results based on different subsamples of OECD countries and years: (1) 34 countries, 1960-2021; (2) 34 countries, 1960-2021; (3) 29 countries 1995-2020; (4) 29 countries 1995-2020; (5) 29 countries 1995-2020.

Appendix D

Table D1 Regression Results for the Relationship between Household Saving and Uncertainty Including Lagged Saving

	(1)	(2)	(3)	(4)	(5)
Lagged Saving	0.835***	0.841***	0.727***	0.728***	0.709***
	(0.044)	(0.044)	(0.044)	(0.046)	(0.048)
Consumer Confidence	-0.017**	-0.017**	-0.018	-0.021	0.013
	(0.007)	(0.007)	(0.014)	(0.015)	(0.015)
Interest Rate		-0.014	-0.079	-0.014	0.024
		(0.027)	(0.065)	(0.046)	(0.051)
Lagged household worth			0.007	0.005	0.006
			(0.004)	(0.006)	(0.006)
Share of Elderly				0.178	0.174
				(0.163)	(0.169)
Government Balance					-0.188***
					(0.045)
Constant	0.012***	0.012***	-0.010	-0.034**	-0.042**
	(0.003)	(0.003)	(0.018)	(0.016)	(0.016)
Observations	833	827	560	560	558
R-squared	0.656	0.658	0.566	0.569	0.580
Country Fixed Effects	YES	YES	YES	YES	YES

Notes: Standard errors are clustered by country, clustered standard errors are in parenthesis *** p<0.01, ** p<0.05, * p<0.1. Results based on different subsamples of OECD countries and years: (1) 29 countries, 1960-2020; (2) 29 countries, 1960-2020; (3) 26 countries 1995-2020; (4) 26 countries 1995-2020; (5) 26 countries 1995-2020.

Table D2 Regression Results Including Covid-Dummy and Lagged Saving

	(1)	(2)	(3)	(4)	(5)
Lagged Saving	0.830***	0.814***	0.718***	0.719***	0.709***
	(0.051)	(0.045)	(0.044)	(0.044)	(0.047)
Consumer Confidence	-0.013**	-0.012**	-0.011	-0.013	0.008
	(0.006)	(0.006)	(0.014)	(0.015)	(0.014)
Covid	0.069***	0.071***	0.046***	0.045***	0.040***
	(0.008)	(0.009)	(0.011)	(0.011)	(0.013)
Interest Rate		0.044*	-0.054	-0.031	-0.005
		(0.024)	(0.063)	(0.043)	(0.044)
Lagged Household Worth			0.004	0.004	0.005
			(0.004)	(0.005)	(0.006)
Share of Elderly				0.063	0.080
				(0.156)	(0.159)
Government Balance					-0.131***
					(0.046)
Constant	0.010***	0.009**	-0.002	-0.010	-0.020
	(0.003)	(0.003)	(0.017)	(0.015)	(0.016)
Observations	833	827	560	560	558
R-squared	0.735	0.739	0.604	0.604	0.603
Country Fixed Effects	YES	YES	YES	YES	YES

Notes: Standard errors are clustered by country, clustered standard errors are in parenthesis *** p<0.01, ** p<0.05, * p<0.1. Results based on different subsamples of OECD countries and years: (1) 29 countries, 1960-2020; (2) 29 countries, 1960-2020; (3) 26 countries 1995-2020; (4) 26 countries 1995-2020; (5) 26 countries 1995-2020.

Table D3 Regression Results Including Covid-Dummy with Interaction Terms and Lagged Saving

	(1)	(2)	(3)	(4)	(5)
Lagged Saving	0.831***	0.815***	0.723***	0.724***	0.720***
	(0.051)	(0.047)	(0.046)	(0.046)	(0.048)
Covid	0.072***	0.068***	-0.020	-0.047	-0.261***
	(0.010)	(0.013)	(0.040)	(0.128)	(0.083)
Lagged Saving x Covid	-0.048	0.001	0.104	0.115	0.155*
	(0.142)	(0.144)	(0.126)	(0.143)	(0.090)
Consumer Confidence	-0.013**	-0.012**	-0.012	-0.013	0.007
	(0.006)	(0.006)	(0.014)	(0.015)	(0.014)
Consumer Confidence x Covid	-0.000	0.017	-0.280**	-0.289**	-0.220
	(0.020)	(0.025)	(0.124)	(0.136)	(0.140)
Interest Rate		0.044*	-0.054	-0.035	0.002
		(0.024)	(0.065)	(0.042)	(0.045)
Interest Rate x Covid		-3.088	-1.927	-1.706	-3.307***
		(1.952)	(1.394)	(2.250)	(0.932)
Lagged Household Worth			0.005	0.004	0.006
			(0.005)	(0.006)	(0.007)
Lagged Household Worth x Covid			0.006	0.006	0.008
			(0.007)	(0.007)	(0.006)
Share of Elderly				0.055	0.088
				(0.168)	(0.173)
Share of Elderly x Covid				0.113	0.935***
				(0.465)	(0.309)
Government Deficit					-0.121**
					(0.047)
Government Deficit x Covid					-0.610**
					(0.263)
Constant	0.010***	0.009**	-0.004	-0.011	-0.024
	(0.003)	(0.003)	(0.019)	(0.015)	(0.016)
Observations	833	827	560	560	558
R-squared	0.735	0.742	0.612	0.612	0.617
Country Fixed Effects	YES	YES	YES	YES	YES

Notes: Standard errors are clustered by country, clustered standard errors are in parenthesis *** p<0.01, ** p<0.05, * p<0.1. Results based on different subsamples of OECD countries and years: (1) 29 countries, 1960-2020; (2) 29 countries, 1960-2020; (3) 26 countries 1995-2020; (4) 26 countries 1995-2020; (5) 26 countries 1995-2020.