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ECB Consumer Expectations Survey: an overview and first evaluation

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Abstract

The Consumer Expectations Survey (CES) is an important new tool for analysing euro area household economic behaviour and expectations. This new survey covers a range of important topical areas including consumption and income, inflation and gross domestic product (GDP) growth, the labour market, housing market activity and house prices, and consumer finance and credit access. The CES, which was launched as a pilot in January 2020, is a mixed frequency modular survey, which is conducted online. The survey structure and centralised data collection ensures the collection of harmonised quantitative and qualitative euro area information in a timely manner that facilitates direct cross-country comparisons. During the pilot phase, it was conducted for the six largest euro area countries and contained 10,000 individual respondents. In the context of the coronavirus (COVID-19) pandemic, the CES has been used to gather useful information on the impact of the crisis on the household sector and the effectiveness of policy measures to mitigate the effects of the pandemic. The CES also collects information on the public's overall trust in the ECB, their knowledge about its objectives and the channels through which they learn about its monetary policy and other central bank-related topics. This paper describes the key features of this new ECB survey – including its statistical properties – and offers a first evaluation of the results from the pilot phase. It also identifies a number of areas where the survey can be usefully developed further. Overall, the experience with the CES has been very positive, and the pilot survey is considered to have achieved its main objectives.

Keywords: household surveys, expectations, consumer behaviour, micro data set, euro area.

JEL Codes: C42, D12, D14, E21, E24, E31.

Executive summary

In 2018, the ECB initiated a project to build a new online Consumer Expectations Survey (CES) for the euro area. The primary goal of the project was to build a high-quality survey related to euro area households' economic and financial activities that would be of use for policy analysis and research at the ECB and across the Eurosystem.

A pilot phase of the CES began in January 2020 and included the six largest euro area countries (Belgium, Germany, Spain, France, Italy and the Netherlands). The first waves of the survey were launched with a gradual increase in respondents during the first months. By June 2020, a sample size of 10,000 individual respondents was reached across the six countries included in the pilot phase, with active repeat participation by survey respondents from then on. As demonstrated in this paper, the pilot phase confirmed the overall high quality of the CES data and, in particular, the ability of online survey methods to very successfully fill important knowledge gaps confronting euro area household sector analysis. As a result, in March 2021, the ECB Executive Board endorsed the continuation of the CES after the pilot phase ended in June 2021. The survey will therefore enter a new development phase between July 2021 and December 2023, which will see further enhancements including an increased sample size, a broader country and topical coverage and other measures aimed at strengthening the quality of CES analysis at both the aggregate and more micro levels.

While ECB staff took responsibility for the design of the survey's main economic and statistical features, the implementation of the survey fieldwork was outsourced to Ipsos Public Affairs, a leading global survey company, following a competitive procurement process. The survey company was also contracted to conduct cognitive interviewing with some of the panel participants – selected by socio-demographic characteristics – in order to confirm the validity of self-reported survey data. For quality purposes, it is key to test if the respondents' interpretation is consistent with the questions' intended meaning. The cognitive testing proved to be informative, giving valuable feedback on key survey questions thereby helping to inform future questionnaire design and phrasing. Moreover, the design of the CES has benefited from best international practice and from the experience of setting-up a number of other similar online surveys, in particular the Survey of Consumer Expectations (SCE) run by the Federal Reserve Bank of New York (the "New York Fed") and the CentER internet panel sponsored by De Nederlandsche Bank and maintained at Tilburg University. The project has also benefited from regular interaction with experts in survey-based research and analysis from the EU national central banks, who have contributed to the analysis and evaluation of pilot CES data.

This paper gives an introductory overview of the main features of the CES and presents an assessment of the CES data collected during the pilot phase – in particular between April and December 2020. The CES employs a mixed frequency modular survey design to optimise the collection of household data across a broad

range of topical areas. After being recruited into the panel, survey respondents are first asked to complete a background module that collects information on relatively time-insensitive variables such as gender, employment status, educational background, annual income, etc. Two regular modules, fielded at monthly and quarterly frequencies, are then used to collect information that varies more over time. During the development phase, further regular modules will be added to the CES that collect information at an annual frequency.

The survey structure and centralised data collection has ensured the collection of harmonised quantitative and qualitative information in a timely manner that facilitates direct cross-country comparisons. Interim data from each survey wave is received at the ECB around the middle of each month, while the final data are delivered to the ECB around ten days after the end of each month. The experience to date has demonstrated that it is possible to ensure the retention of survey respondents over time. This strong panel component is critical for economic analysis because it allows for an assessment of how respondents' perceptions and expectations change over time and how they respond to serious economic shocks.

The CES has demonstrated its ability to address key knowledge gaps, strengthening the ECB's coverage and understanding of how households form expectations and the implications of this for monetary policy and central bank communication. The CES has provided granular data on household economic behaviour and expectations related to consumption and income, inflation and gross domestic product (GDP) growth, the labour market, housing market activity and house prices, and consumer finance and credit access; offering timely and insightful analysis into key household sector issues, so as to better inform economic analysis and monetary and macroprudential policies. In addition, the survey has been able to collect information on the public's overall trust in the ECB, their knowledge about its objectives and the channels through which they learn about its monetary policy and other central bank-related topics.

The flexibility of the online platform has enabled the survey to be adapted to respond to topical issues whenever it is considered appropriate, a prime example being the very timely provision of valuable information on households' behaviour during the COVID-19 crisis. In a period when face-to-face interviews would have presented many challenges, the online mode of surveying households has ensured continuity of insightful information on the heterogenous repercussions of the pandemic for households – and on the effectiveness of the associated fiscal, monetary and other policy responses.

The decision to make the CES a permanent ECB survey is underpinned by the very positive experience obtained during the pilot phase, when it was assessed as having clearly demonstrated its potential to deepen ECB and Eurosystem understanding of household sector decisions and expectations, contribute to timely policy analysis, and address future analytical and research priorities. The pilot experience has also demonstrated that the CES is broadly representative of the population and other key structures across the euro area and the data are assessed to be of a statistical quality that is as high as other equivalent online surveys. At the same time, a number of key improvements have been identified that would further strengthen the

robustness of the CES. In particular, the pilot phase pointed to some important challenges linked to the online nature of the survey and suggests the need to explore innovative ways to further improve the quality of the underlying data. This includes the need to better capture older and less well-educated respondents, and to optimise the sampling methods employed, sample size and country coverage with the aim of making the CES more representative of the wider euro area population. As a result, an important priority during the next stage of development will be to optimise the total sample size to enable more granular analysis of specific groups, as well as to enhance the CES data's overall statistical quality and representativeness by increasing the share of older and less well-educated respondents. Another priority will be to explore the potential to extend the country coverage to include additional euro area countries. During the pilot phase, access to CES data has been limited to users from the ECB and the European System of Central Banks (ESCB) (with conditions attached), however, in the future it is planned to publish key aggregate results on the ECB's website and also to make the anonymised micro data available to external researchers and other data users.

1 Introduction

In January 2020, the ECB launched the first waves of its pilot Consumer Expectations Survey (CES). The survey was set up to fill important knowledge gaps that exist in relation to household sector analysis in the euro area. The key motivation for the CES was to provide information of relevance for both monetary policy and financial stability analysis by developing a better understanding of the key drivers as well as the heterogeneity underlying households' economic and financial expectations and behaviour. In recent years, a number of other major central banks have also developed similar online surveys to help inform central bank policies.[1] The project to develop the CES has benefited significantly from consultations with experts from both within the European System of Central Banks (ESCB) and more widely across the central banking community.

This paper first describes the main motivations, goals and features of the CES, moving on to provide a comprehensive evaluation of the results and experience to date and make proposals for further development of the survey. The past year has been a very challenging time for collecting timely and reliable data and for assessing household sector developments. However, the launch of the CES – in January 2020 – proved to be particularly useful given the outbreak of the COVID-19 pandemic which complicated the collection of information via traditional offline economic surveys. Overall, the paper concludes that the CES has demonstrated substantial benefits for ECB policy analysis, even during its pilot phase. A particularly important aspect, in this regard, is the flexibility demonstrated by the online platform to adapt in a timely manner to evolving topical issues. Also, in its overall statistical quality and representativeness – key elements for its use in monetary policy – the CES has achieved a level of overall statistical quality that is at least as high as other equivalent online surveys.

1.1 Main motivations for launching the CES

The primary goal of the CES is to collect high-quality and representative household-level information in a very timely manner that can be used both for comparable cross-country and euro area policy analysis, and applied research. The survey thus supports the ECB's pursuit of its main strategic priorities, including the improvement of the analytical basis for macroeconomic projections, deepening the understanding of monetary transmission and contributing to the assessment of financial stability. The survey provides information, mainly on expectations, household consumption and income, housing and other investment, borrowing choices and labour market

[1] See, for example, the Federal Reserve Bank of New York's Survey of Consumer Expectations (New York FED's SCE) (https://www.newyorkfed.org/microeconomics). In the EU, De Nederlandsche Bank has long sponsored an online household survey as part of the CentER internet panel maintained at Tilburg University (see Teppa and Vis, 2012). Similar regular (and other more ad hoc) surveys have also been set-up by the Bank of England (Anderson et al., 2016), the Bank of Canada (Gosselin and Kahn, 2015), the Bundesbank (Beckmann and Schmidt, 2020) and Banca d'Italia (Neri and Zanichelli, 2020; Rondinelli and Zanichelli, 2021).

conditions. Moreover, it quantifies both expectations and consumer-specific uncertainty in relation to these concepts by taking account of the most recent survey methodologies. As such, the survey provides information that directly relates to several of the ECB's strategic priorities.

To strengthen economic analysis, the CES aims to provide reliable information linked in particular to household income and consumption, labour market activities and household expectations of inflation. Given the importance of consumption for overall euro area economic developments, it is of paramount importance to understand the related decision-making process in the household sector. As regards disaggregated data about household consumption, this typically becomes available with some time lag. The CES partly fills this gap by collecting – in a timely manner and at a high frequency – quantitative information on durable and non-durable consumption.[2] However, household decisions are quite complex, as different household groups are affected differently by a given policy intervention or economic shock and many households often exhibit behaviour that deviates from models of purely optimal choices. The CES also records consumers' views about the labour market – in particular the insecurity that they feel in their present job and their expectations of finding and transitioning to a new one – and the job-seeking activities of the unemployed. Such granular data are very important to understand the overall level of slack in the economy – a prerequisite for the further assessment of its implications for wage and inflationary pressure. By collecting detailed data that tracks the movement of expectations and the choices of various household groups in response to the flow of economic news and changes in economic conditions, the CES aims to shed light on these processes and their implications for the macroeconomy. Importantly, the heterogeneity in household behaviour allows for a better identification of the underlying transmission and causal effects of shocks and policy changes, and this is often less easy to achieve with aggregate time series data on their own.

In relation to monetary policy, information collected from the CES deepens knowledge of the evolving transmission mechanism. An advantage of the CES is that it can measure changes in various consumer expectations in response to policy announcements and central bank communication more generally. In particular, it provides consumer perceptions of inflation and expectations over different horizons, providing very valuable information to complement inflation expectations from professional forecasters or financial market indicators. Likewise, it can help to measure changes in such things as consumers' propensity to consume and take on debt. The CES can also provide information on, on aspects like the heterogeneous response of different household groups within a country to a change in interest rates. Moreover, it collects quantitative (as well as qualitative) information, thus allowing for a precise comparison: both across households in different countries at a given point

[2] Household Budget Surveys (HBS) typically collect detailed information on consumption item by item (e.g. amount spent on holidays, food at home, food outside home, etc.). On the other hand, internet surveys often ask for more aggregate information on household spending (e.g. total durable and total non-durable consumption), but deliver this information in a timely manner and allow better tracking of changes in consumption patterns over time. More recently, internet surveys (including the CES) have started to collect more disaggregated information on consumption expenditure by exploiting useful design features that allow respondents to check the overall consistency of their responses.

in time and for the same households over time. Quantitative data are also necessary in order to facilitate a clear assessment of the economic relevance of the insights from the survey. The CES also collects information on consumers' views about other relevant topics (e.g. on their trust in a range of institutions and organisations) and monitors these views across countries and over time. In addition, it collects information on public trust in the ECB and knowledge about the ECB's objectives and how this may influence consumer expectations and decisions. More generally, the survey provides insights for strengthening Economic and Monetary Union (EMU) from the viewpoint of consumers, promotes high-quality research and fosters collaboration across different ECB business areas.

The CES also provides micro-level information that may be important for financial stability. As an example, it collects information on housing market expectations and uncertainty about the future trend in house prices – a key determinant of households' net wealth. Moreover, the CES aims to track household propensity to take on debt and link it to certain consumer characteristics and prevailing economic conditions. For instance, it is instructive to know more about consumer expectations regarding changes in house prices across different regions in a country (e.g. urban vs. rural areas) and groups with different characteristics (e.g. with different debt exposure).

1.2 The CES covers "blind spots" left by existing surveys

In the past, the micro-level information collected in the euro area on a frequent basis and made available for analysis mainly related to banks and firms. A comparable high-frequency panel survey for euro area households did not exist. The CES provides the household sector analogue of the euro area Bank Lending Survey (BLS) and the Survey on Access to Finance of Enterprises (SAFE).

The other main household surveys in the euro area are the European Commission's Business and Consumer Surveys (BCS)[3] and the ESCB Household Finance and Consumption Survey (HFCS). The BCS are conducted by the European Commission on a monthly basis, and the results are widely used for analytical purposes and for policy analysis. Although a long time series is available, the BCS are mostly of a qualitative nature.[4] While it contains questions about the general state of the economy, including unemployment expectations and price trends, an assessment about the past and future financial situation, saving intentions and plans for major purchases, it does not cover quantitative information on household income, assets, debts and consumption and is not designed to provide a measure of the underlying uncertainty in consumer expectations. While some national statistical institutes offer access to anonymised micro data, such data are not widely available for all countries

[3] The European Commission also conducts the Standard Eurobarometer Survey twice a year (https://europa.eu/eurobarometer/screen/home). It mainly provides qualitative information on a broad range of social, economic and political issues and is based on face-to-face interviews. Other micro surveys include the EU Statistics on Income and Living Conditions (EU-SILC) and the Household Budget Surveys, both based on face-to-face or telephone interviews. The first collects information on income, social inclusion and living conditions, while the second focuses on household spending on various items.

[4] A pilot project has existed since 2003 to survey quantitative perceptions and expectations about inflation.

nor by a centralised provider. Moreover, the BCS generally collect data from a repeated cross-section of different households each month and thus it is not generally possible to track the same households over time. Lastly, the decentralised set-up of the BCS also constrains the possibility of flexibly introducing new questions of special interest to reflect the changing economic environment and policy-relevant issues.

By contrast, the HFCS provides low frequency (triannual) information with a time lag of approximately two years and mainly focuses on households' balance sheets. As a result, it has proven very useful for various research purposes – examining differences in the accumulation and distribution of households' assets and debts across countries and population groups. Policy-relevant questions (e.g. on income and house price expectations) are also included in the HFCS, although its design does not allow the quick delivery of time-sensitive information. It is worth highlighting that the different (and very complementary) nature of the information provided by a high-frequency internet survey versus a traditional household survey like the HFCS has been recognised by a number of central banks which maintain both types of surveys.[5]

1.3 A rich resource for future research and policy analysis

While the information that the CES collects can be readily used to conduct empirical research into various topical issues, from a methodological point of view, the online nature of the survey lends itself to adopting a quasi-experimental set-up that facilitates a more causal analysis of the transmission of economic shocks. For example, it is possible to present respondents with some hypothetical scenarios on variables like interest rate or inflation trends, and measure their possible reactions. In a similar vein, one could ask special questions that allow certain parameters of interest (e.g. questions on the propensity to consume out of hypothetical positive and negative transitory income shocks) to be deduced.[6] Moreover, one could use the survey to implement randomised control trials (RCTs). That is, random subsets of respondents (treatment groups) receive some factual information (e.g. about economic growth) while a group of respondents (serving as control) does not. In this context one can estimate the causal effect of such information provision on expectation updating and behaviour adjustments of the treated household groups relative to that of the control.[7]

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5 For example, the Federal Reserve System conducts the US Survey of Consumer Finances (SCF) every three years to collect information on household balance sheets – in addition to the New York Fed's monthly SCE – to collect data on consumer expectations and other time-sensitive information. While the experiences of other central banks running internet consumer surveys has been particularly helpful in setting up a euro area counterpart survey, the questionnaire focuses on addressing euro area policy needs.

6 Christelis et al. (2019) use the Dutch CentER panel to ask respondents how much they would consume out of a one-off bonus received from the government and by how much they would reduce their consumption due to a one-off tax. The responses allow comparing individual-specific marginal propensities to consume out of unexpected, transitory, positive and negative income changes.

7 For an implementation of such an RCT in the CES, measuring the effects of macroeconomic uncertainty on household spending, see Coibion et al. (2021).

Recent research has emphasised the advantages of using survey measures of expectations in macroeconomics (see Manski, 2017) as well as the insights gained from micro data to rebuild macroeconomic models (see Vines and Wills, 2018). For instance, there is a need to reassess the consumer formation of expectations and incorporate real-time expectations collected through high-frequency surveys in macroeconomic analysis. This is particularly the case, as survey-based evidence suggests some important deviations of consumer expectations from full-information rational expectations. For example, Coibion and Gorodnichenko (2015) show how incorporating information on inflation expectations from survey data can address a number of otherwise puzzling shortcomings that arise under the assumption of full-information rational expectations. Armantier et al. (2015) use the New York Fed's SCE to examine whether household surveys suffer from cheap talk and if consumers act on their inflation beliefs. They find that the inflation expectations that consumers report in the survey, strongly relate to their responses in a financially incentivised experiment.[8] Armantier et al. (2016) exploit the flexibility of the SCE to present survey participants with different inflation scenarios, to examine how they respond to new information. Their results provide support for expectation formation models in which expectations are formed rationally, but agents face information constraints. The CES can also measure expectations in a way that enables an individual's uncertainty to be deduced in respect of future events that they face.[9] For example, Christelis et al. (2020a) have introduced a special module of questions into the DHS that empirically measure household uncertainty about future consumption and find evidence that uncertainty induces precautionary saving. Christelis et al. (2020b) – using data from this survey – show that higher consumer trust in the ECB reduces uncertainty about future inflation and helps to anchor inflation expectations around the ECB's definition of price stability. Moreover, it should be noted that path-breaking empirical research has exploited the flexibility that internet household surveys offer in designing questions of special interest. For example, the seminal work by van Rooij et al. (2011) on measuring financial literacy, used information from a special set of questions introduced into the DHS. Likewise, Guiso et al. (2008) used questions asked in this survey to measure the effects of trust on stock market participation. Last, the flexibility of such surveys coupled with their timeliness in fielding and collecting topical information has proven particularly valuable in investigating household behaviour during crisis episodes in a timely manner. For example, Christelis et al. (2020c) used CES data from April to October 2020 to estimate the effects of the COVID-19 shock on household spending.

8 There are also a number of recent studies showing that individual inflation expectations feed into household borrowing, investment and spending decisions. For instance, Malmendier and Nagel (2016) find that households with higher inflation expectations are less likely to invest in long-term bonds and more likely to borrow through fixed-rate mortgages compared to their counterparts with low inflation expectations. D'Acunto et al. (2016) show that an increase in inflation expectations implies a higher readiness to purchase durable goods.

9 Such a survey design follows the insights of Manski (2004) and deviates from the traditional approach of asking respondents to report a single point estimate (e.g. about expected inflation) which implies that respondents do not display any uncertainty about their reported values. The approach that allows individual uncertainty about future outcomes to be measured has been adopted by a number of modern surveys on consumer expectations.

1.4 Key features of the CES

To fill the aforementioned data and knowledge gaps in an efficient manner, the CES was designed with a number of key features. Each of these features brings particular advantages, as well as entailing some specific costs. The main benefits of these key features are as follows:

Internet-based: Internet surveys (computer-assisted web interviewing or CAWI) have several advantages compared with traditional surveys that use face-to-face (computer-assisted personal interviewing or CAPI) and telephone (computer-assisted telephone interviewing or CATI) interviews. First, they tend to cost less. Second, they offer a higher degree of flexibility in questionnaire design, with regard to both presenting individual questions and managing the topics included in the questionnaire without having to conduct interviewer training for the new topics. For drafting individual questions, surveying via the internet has the advantage that respondents can be presented with more sophisticated questions and scenarios that are not feasible to ask by phone or in a face-to-face interview.[10] The online survey mode offers up-to-date information for policy analysis and allows time-sensitive data – most notably on consumer expectations and the associated underlying uncertainty – to be collected promptly.[11] Likewise, the survey can keep track of recent developments in consumption, borrowing and saving, while it can also record households' immediate plans with regard to these activities. An additional advantage for web surveys such as the CES in terms of timeliness, and particularly in terms of costs, is that households that have participated in the survey previously can be contacted in an efficient manner via email with a link to respond to the questionnaire.[12]

Mixed frequency: A relatively high-frequency survey facilitates a close tracking of time-sensitive household information. Consumer expectations, uncertainty and spending plans can be quite responsive to economic news, certain policy announcements, media reporting and political developments. A high-frequency survey allows household reactions to these events to be measured and how they behave over longer periods of time (e.g. how consumers revise their expectations when past expectations deviate considerably from actual outcomes) to be assessed. The underlying approach of the CES is to have mixed frequencies, with some questions asked monthly and others with a quarterly or annual frequency. This approach is designed not to overburden respondents, while at the same time collecting information at meaningful intervals. The CES also allows ad hoc surveys to be set up before and after events of interest (such as following the COVID-19

10 For example, probabilistic questions on expectations where the respondent is asked to distribute 100 points among several answer categories are very difficult to collect in a telephone interview but can be better visualised in a self-administered web survey.

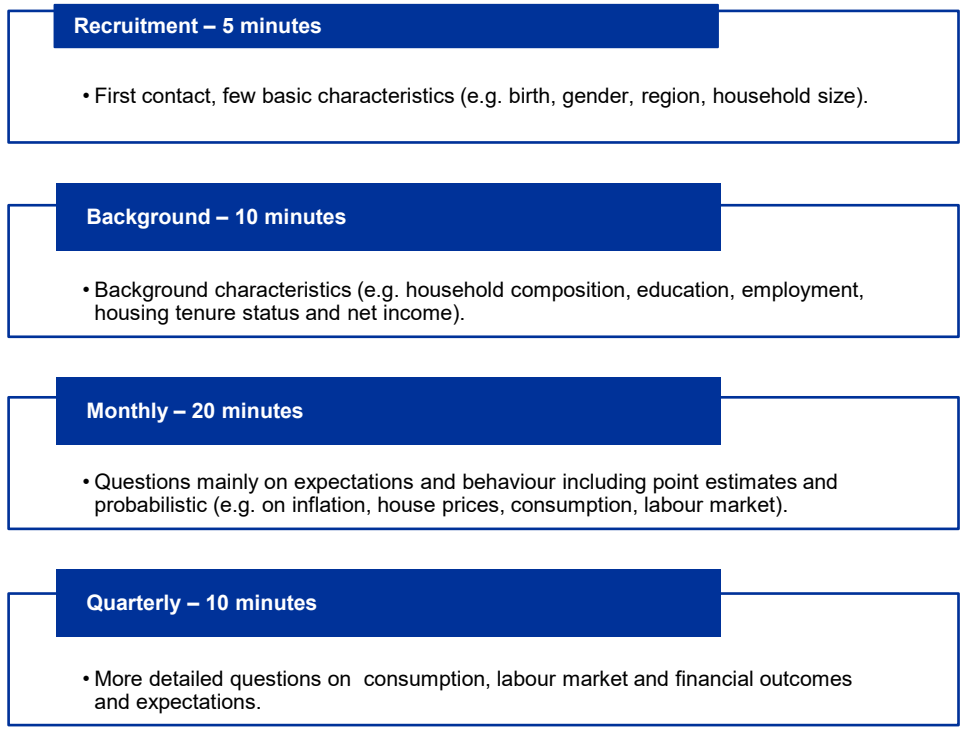
11 For example, the survey can measure expectations about interest rates, house prices, inflation, economic growth, labour market prospects, self-assessed financial situation (sentiment), etc. Expectations can be measured in a way that allows key features and moments of every individual's subjective expectations distribution to be deduced – which can be quite revealing about the uncertainty that individuals face.

12 At the same time, internet-based surveys may have very low response rates (which makes it necessary to have additional information on non-respondents to be able to correct for potential biases). Gambacorta et al. (2018) show that in Italy, web surveys are particularly suitable for collecting qualitative information but are less effective in retrieving detailed quantitative information.

outbreak) or special-purpose questions to be designed (e.g. on topics relevant to the monetary policy strategy review).

A modular survey structure: Drawing on the international experience of similar surveys, once the survey members have been recruited, the CES includes: (1) a *background interview* – conducted once a year – that aims to collect information on incomes, financial/real asset holdings, debts and basic household demographics. The collection of background information allows the survey data to be linked with other data sources. Such information includes household location (in order to combine data with NUTS for example)[13] and information on local conditions (such as regional GDP growth rates, car sales, consumption and local labour market conditions); (2) a *monthly core survey* module on expectations and spending decisions, as well as other time-sensitive information that can be collected on a monthly basis; and (3) a *quarterly module* that collects information at a lower frequency. A brief overview of the CES modular survey structure is provided in Figure 1.1.

Figure 1.1
Overview of the CES questionnaire



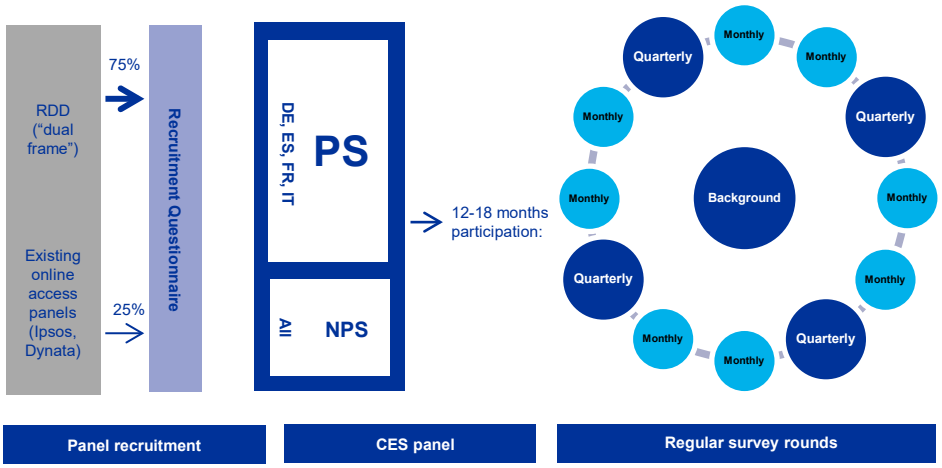
Harmonised questionnaires and data collection: The survey is designed to ask a common set of questions across countries and over time. The pilot survey targeted the six largest euro area countries, thereby also providing insights for the euro area.

[13] The NUTS classification (Nomenclature of Territorial Units for Statistics) is a hierarchical system for dividing up the economic territory of the EU for the purpose of analysis by geographical region.

The questionnaires are available in the national languages in these countries to ensure comparable responses that can also be aggregated.

Random recruitment and sampling: While the survey questionnaires are fielded via the internet, recruitment of the survey respondents takes place through several different methods. In contrast to many existing online surveys, the CES has adopted an approach which combines both random probability sampling (PS) with non-random sampling (NPS) of survey participants from existing online survey panels (see Figure 1.2). The majority of respondents -approximately 75% in the larger euro area countries – are recruited via random digit dialling (RDD), either through calling landline or mobile phone numbers. The virtue of this random sampling approach is that such methods can in principle help to recruit any member of the population who can be contacted by phone. The remaining 25% of respondents are then recruited from existing non-random samples of consumers who have agreed to participate in online surveys. For the smaller countries in the pilot, the sample is currently completely derived from existing access panels. While this approach is cost-effective, it also enables some comparison to be made between the two different methods of recruitment during the pilot phase, with a view to developing an optimal sampling structure over the longer term. Section 2 discusses in further detail the pros and cons of the adopted sampling methods as well as ideas for the future development of this aspect of the CES over the longer term.

Figure 1.2
Constructing the CES



Individual panel structure: A panel structure ensures that the survey tracks the same consumers over time providing insights on the link between expectations and follow-up decisions.[14] Clearly it is not reasonable to expect that respondents always remain part of the survey. Instead, the panel is designed to rotate in the sense that

[14] Questions about individual-specific concepts such as expectations and uncertainty are asked to the respondent in the household, while household-specific concepts such as consumption, savings and debts are reported by the respondent for the entire household. The respondent is typically a household member who is knowledgeable about household finances.

consumers respond to the survey over multiple rounds, but then drop out after 1-1.5 years. Also, with a view to representativeness, new consumers are added to the sample in each wave, since in every wave some panel members stop responding to the survey. Non-response is often not random, but depends on such things as age or labour status. From a more technical point of view, a panel is necessary to deduce causal inference on the factors driving consumer behaviour. As is typical with euro area household surveys, the ECB receives *anonymised data* (i.e. it is not possible to identify the identity of individual households, but only to distinguish among them for the purposes of the analysis based on a unique ID) from the external survey company and importantly, the survey has been designed to conform to all EU *data protection requirements*.[15]

In the following sections, the paper includes a comprehensive evaluation of the statistical quality of the CES, based on the experience of the pilot (Section 2), and provides a summary of the various areas covered and provides a selected presentation of the main results on key topics covered by the survey, namely consumption, income and savings (Section 3), inflation (Section 4), labour markets (Section 5), consumer finance (Section 6) and housing markets (Section 7). The paper also includes boxes on the following topics: cognitive interviews (Box 1), the advantage of probability versus non-probability sampling (Box 2), the transmission of the COVID-19 shock to household consumption (Box 3) and on sources of knowledge and information about the ECB (Box 4).

Box 1
Questionnaire design: Insights from cognitive interviewing

In order to verify that survey respondents' understanding of questions is consistent with the intended meanings, the survey company was asked to conduct cognitive interviews (CI) with 30 new and existing panel participants, selected on the basis of various socio-demographic characteristics. The panellists provided valuable feedback on key survey questions which helps to improve the respondents' understanding and engagement with the survey questions.

Since the 1980s, the cognitive aspects of survey methodology (CASM) approach have developed a model of cognitive processing in answering survey questions with four main components: question comprehension, information retrieval, judgement and estimation and documenting a response (Tourangeau and Bradburn, 2010, among others). CI is part of this approach and consists of a set of techniques – "think out loud" procedures and verbal probes (Beatty and Willis, 2007, among others) – that allow the in-depth study of participants' thought processes and perceptions when answering a question (Sudman et al., 1996). CI is used to test survey questions during the questionnaire design and refinement process, strengthening the quality of survey evidence for evaluation and applied research. CI is commonly administered as part of the pilot phase of national evaluations and large-scale surveys in several areas including education and health care (Desimone and le Floch, 2004).

The primary aim of the CI was to assess the effectiveness of the CES survey questions in eliciting the required information from participants. Specifically, it sought to identify whether: (i) participants

[15] See the website of the European Data Protection Supervisor.

understood the questions and response options in the way intended, (ii) participants could answer the questions, (iii) the instructions made sense, and (iv) the questionnaire layout was helpful or off-putting.

In December 2020, a total of 30 CI were conducted, five in each of the 6 countries surveyed in the panel. A standardised interview guide was designed by Ipsos in close consultation with the ECB, combining the think aloud technique with standardised follow-up questions for the interviewer to assess the respondents' understanding and perceptions of the question. The interview guide included 18 core module questions, selected following analysis of the survey data collected to that point. The target duration of the CI was 60 minutes. The guide was produced in English and translated into the national languages of the six countries.

Prospective participants for the cognitive testing were sampled to ensure the representation of a mix of panel members in terms of key socio-demographic variables – gender, age, education and financial literacy – and panel membership variables – length of tenure on the panel, and recruitment method (random probability versus non-random probability). Panel members with an economics background were excluded from the sample given their likely higher level of affinity with the topic areas covered in the CI. The interviews were carried out using a combined online and videocall approach to mimic the survey's administration method.

The cognitive testing proved to be an informative and fruitful exercise, providing useful feedback on the questions concerned. Most of the minor issues identified involved either missing examples for certain response options (e.g. uncertainty about the meaning of "Indirect support through support for your employer" in the COVID-19 government support question), underlying assumptions respondents had about the topic of the question (e.g. "prices always rise" in the case of general price expectations – qualitative) or not enough/too many response options or instructions (e.g. some respondents found the explanatory text unnecessary and cumbersome for price expectations - probabilistic). Some of the major issues identified concerned difficulties for participants to respond due to a lack of knowledge (e.g. about the stock market), a missing timeframe in the precautionary savings question and questions requiring additional cognitive effort (e.g. questions about household net income over 12 months or general price expectations – open-ended).

One important lesson was that the simpler the questions are the better. Some respondents found concepts such as "unexpected events" (Q1161), "goods and services" and "typical month" (C1201) unclear and thus had a different understanding of the question than intended. For example, in the case of the consumption uncertainty question, respondents had different meanings for "goods and services", some responding by only thinking of regular expenses, while others also include irregular or unexpected expenses. Furthermore, "typical month" seems to not provide respondents with sufficient information about the time reference, as some provided answers thinking of the current month or a typical past month. These examples signal the need for simpler formulations of some of the CES questions to enable respondents to provide consistent answers (Kapteyn and Teppa, 2011).

Another aspect signalled by the CI regarded mistaken or absent time horizons. In the case of the precautionary savings question, some respondents found it difficult to think about future savings without a given timeframe, an issue more common among those with lower education attainment and lower financial literacy levels.

Another important insight was the persistent role of past experience in respondents' expectation formation. When giving a minimum and maximum estimate for their household spending over the next 12 months, many respondents focused on a typical past month, or the current month (December 2020). Their estimates of future household spending were anchored in the past, while thinking about the current month has the potential to give skewed expenditures estimates, given that December includes extra wage components and seasonal expenditures due to Christmas. While some respondents did consider an average month's spending, they found that a six-month time frame would be easier to consider in the current context of the COVID-19 pandemic. The prominent role of the backward-looking component in respondents' expectations is also found in other areas, such as inflation, saving and assessment of own financial situation.

It is important to consider the trade-offs in using examples in survey questions. On the one hand, they may help respondents better understand the question. On the other hand, they can provide respondents with reference points in thinking about their answers, at the same time limiting the topics respondents will consider while formulating an answer. In the case of general price expectations – open-ended, mortgage interest rates or stock prices, many respondents stated that they would be able to give a more informed answer if they had a reference point in the form of current values, as they did not have the knowledge to respond without searching for further information. Similarly, some respondents found it difficult to select the sector/industry category corresponding to their current occupation, signalling the need for more examples for each category. However, in the precautionary savings question, the examples provided for "unexpected events" proved confusing to some respondents. Some were considered to have a general impact over one's life (e.g. job loss) while other were irrelevant to respondents (e.g. illness). The examples limited the range of events respondents considered when answering and will be adjusted following the feedback received.

The CI signalled several possible ways to improve the core CES questions. The precautionary savings question will be rephrased, with the aim of ensuring a simpler and clearer formulation of the concepts addressed. Likewise, changes will be made to the consumption uncertainty minimum/maximum question, to clarify the meaning of "goods and services" and "typical month". In the case of general price expectations in the next 12 months – probabilistic question, more analysis is planned to finetune the response options. The response options display and phrasing will also be improved for the question on government support during the COVID-19 pandemic, to allow it to be used in future rounds. For the stock market prices and household net income questions, respondents will be further encouraged to provide their best estimate as a response, even if they feel they cannot give a precise answer. Finally, more testing will be done on the job sector/industry question in ad hoc modules so respondents can easily identify their profession in the list of response options.

2 Sampling and statistical properties

The CES aims for timely and representative results for the six countries included in the pilot. This section gives an overview of the various sampling-related aspects of the CES, including a description of the sampling design, composition of the recruited and completed samples, and weighting adjustments. The composition of the pooled sample is compared to external benchmarks in terms of age, gender, region, employment, education, housing tenure, and household size. In the four largest countries, the sample is a combination of probability (75%) and non-probability (25%) samples, while in the other two countries the sample is 100% non-probabilistic. This section and a dedicated box also compare these two types of samples, although the aggregate CES estimates are derived from the blended samples – combining both probability and non-probability parts.

The CES online-only mode facilitates highly harmonised and internally valid measurement as well as randomised experiments within the sample. The survey provides very timely results from a relatively large sample that is generally representative of the six participating countries by age, gender and region. After weighting, the sample combining all countries also compares well with external benchmarks in terms of employment, housing tenure, and household size. As with other online surveys, the survey has some difficulty in covering older respondents (aged 70+) and the less educated, which should be investigated further. At country level, the weighted sample compositions deviate more from the external benchmarks, and the probabilistic and non-probabilistic samples also exhibit some differences in response behaviour as well as country-specific differences in sample compositions. From a longitudinal perspective, it is worth highlighting that panel participation is consistently high, with the survey exhibiting very low attrition rates.

2.1 Target population, sampling and sample structure

The target population of the CES is the adult population, aged 18 and above, residing in each of the six countries included in the pilot. The CES aims at a sample that is representative by age, gender and region, but the recruitment process screens out respondents who do not use the internet.[16] While respondents can be aged 70 or above, the requirements for sample representativeness have initially been set for the age group 18-70 only, given the difficulty to recruit panel members aged 70+ into the sample. Over time, there should be a continued increase in the use of the internet by this age group, but the possibility to better sample respondents in the age group 70 and over in a representative manner, for example by using mixed mode data collection, is a subject of ongoing development.

[16] Regional representativeness targets are based on three to four regions (merged NUTS1-regions) per country.

2.1.1 Probability and non-probability sampling

The sampling design is a combination of two methodologies: 1) random probability sampling (PS), where all individuals belonging to the target population have a non-zero and known probability of being selected; and 2) non-probability sampling (NPS), where only a specific subset of individuals belonging to the target population has a non-zero probability of being selected. In household surveys using random probability sampling is generally seen as the best way to ensure sample representativeness, and consequently such methods are used to recruit the majority of respondents in the CES.[17] The sample also features a rotating panel of respondents which allows obtaining more accurate estimators for monthly changes and to address attrition.

In the PS method respondents are recruited via CATI. The recruitment is done by a dual-frame method based on a sampling frame that consists of a mix of fixed and mobile telephone numbers. Both the fixed and mobile sampling frame make use of RDD (i.e. a method that generates telephone numbers at random). This approach ensures that the sampling frame covers a large majority of the population in each country ranging between 95% in Italy and 99% in Germany, Spain and France. The sampling procedure takes into account the overlap between mobile and fixed line ownership. In defining the share of the mobile sample, all potential respondents that can be reached via a mobile line are included (regardless of whether they can also be reached via a fixed line). The same applies for the fixed line sample.

NPS recruitment is done via different sources[18], and data collection is entirely internet-based. The level of internet penetration in the CES countries is highest in the Netherlands (98%), slightly above 90% in Belgium and Germany, and between 81% and 86% in Spain, France and Italy. This sample is mostly drawn from existing online access panels, but also includes freshly recruited respondents who are less experienced in taking surveys. Quotas are applied in the non-probability component of the CES panel, by age, gender, and geographic region.

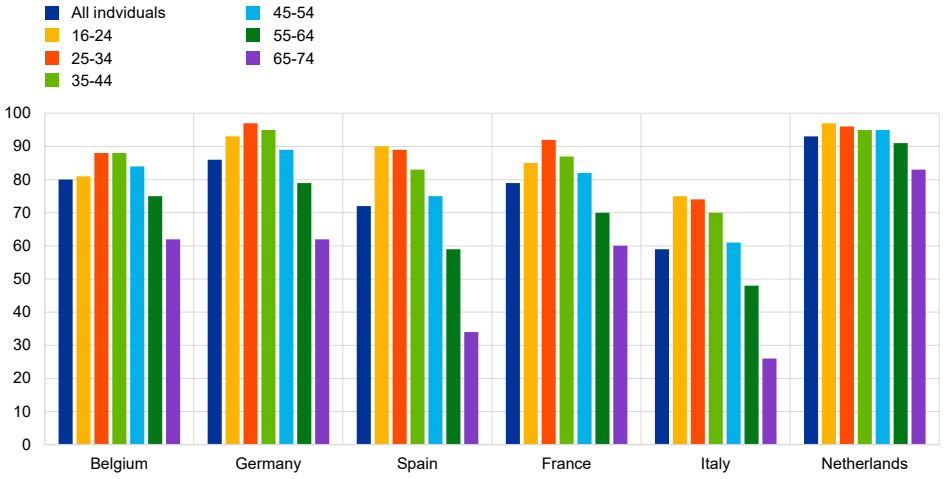
The CES sample is conducted online, with the exception of the offline recruitment of the probability samples. As a result, internet penetration rates are important in enabling participation in the panel in both types of samples. While the overall internet coverage is generally high and increasing, there are still differences across countries and age groups. Chart 2.1 illustrates this by showing an indicator correlated with internet access, namely the share of individuals, by age, who had sent or received email in 2019 according to Eurostat.

[17] In Germany, Spain, France and Italy, 1,500 respondents are recruited using PS and 500 respondents using NPS, while in Belgium and the Netherlands 1,000 targeted respondents are recruited using NPS.

[18] See also next paragraph and Chart 2.2.

Chart 2.1

Percentage of individuals sending/receiving emails, by age and by country, in 2019



Source: Eurostat – 2019 data.
Notes: "Individuals – internet activities"; table data code isoc_ci_ac_i.

2.1.2 Survey participation and unit non-response

The CES total number of recruits amounts to 39,000 individuals in the first 12 months of the pilot phase.

There were 520,000 attempted contacts for probability samples made in the same period – 19,000 of which were successful. *Initial consent*[19] to join the survey stands on average at 3.7% of the total attempts, as shown in Table 2.1. This gross recruitment rate does not vary significantly across countries, ranging from 3.2% for Germany to 4.0% in Spain.

Table 2.1

Response outcomes for the probability samples, by country

Response outcome	All countries	Germany	Spain	France	Italy
Initial consent	3.7	3.2	4.0	3.8	3.6
Refusals	34.3	35.2	37.2	27.0	39.4
Non-contacts	37.0	33.8	36.6	44.1	32.5
Other cases	10.0	8.8	8.5	12.4	10.2
Unknown other	15.0	19.0	13.7	12.6	14.3
Total	100.0	100.0	100.0	100.0	100.0

Source: CES – The latest observation is for December 2020.
Note: Unweighted pooled data.

Negative response outcomes are mainly due to explicit *Refusals* to cooperate and *Non-contacts*, still with prevailing similarities at a national level. France exhibits respectively the lowest number for refusals and the highest number of missed contacts, while the opposite occurs in Italy. A residual category labelled *Other cases*

[19] Providing an email address to receive an invitation for the CES panel Welcome (background) survey is considered as initial consent by randomly recruited individuals.

completes the set of non-interviews. Given the RDD schema to draw probability samples, a proportion of attempted contacts yields the *Unknown* outcome. Their real eligibility to be potential respondents is undetermined, with inactive phone numbers, non-residential fixed line phones or numbers used by out-of-scope individuals all being reasons for ineligible population units.[20]

Focusing on positive response outcomes (Chart 2.2), randomly selected participants are predominantly reached through mobile telephone numbers, accounting for around three-quarters of the total recruitment for probability samples in France and Italy. The highest proportion is in Spain (84%) and the lowest in Germany (57%).

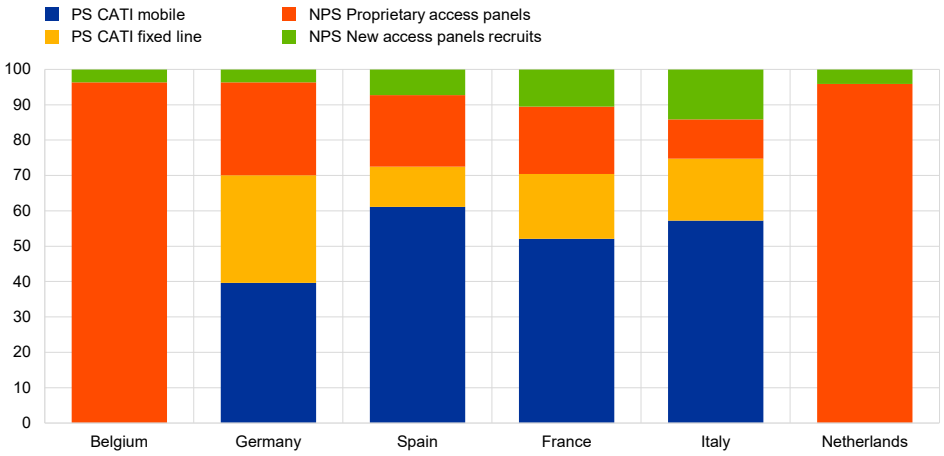
Recruitment from online access panels completes the sample in the four biggest countries, and is the only selection method adopted for Belgium and the Netherlands; with 20,000 individuals being recruited through non-probability sampling in the first year across all six countries. This selection stage is largely based on proprietary access panels made available by the survey company: a set of pre-screened respondents who have expressed their willingness to participate in online surveys. Existing access panels are then complemented by new recruits, with different proportions across countries.

For the probabilistic samples, the low recruitment response rates recorded in this first phase do not deviate much from those generally observed in RDD surveys, both in Europe and the United States (Hansen and Pedersen, 2012; Yeager et al., 2011). The concerns rest less on the low rates per se, than on their potential consequences for survey results – given that such a high non-participation may induce non-response biases (Groves, 2006; Groves and Peytcheva, 2008; Koch and Blohm, 2016). However, sampling selection through RDD telephone technique means there is no prior/auxiliary information on sampling units. In turn this prevents the investigation of the unit non-response mechanism and the setting-up of post-survey adjustment to account for it. For refusals, some indication is available for those who answered the basic recruitment questions but did not subsequently want to participate in the survey. For the probability sample respondents, the reason appears to be mainly the lack of interest or time, while for the non-probability sample, insufficient incentives account for half of the valid answers. Nevertheless, an in-depth analysis of refusals is not viable as the vast majority end the interview without releasing any information during the recruitment attempt, not even providing their motivation for non-participation.

[20] Following AAPOR (2016). Standard Definitions: Final Dispositions of Case Codes and Outcome Rates for Surveys. 9th edition), the most indicated response rate formula for CES PS is the RR3: Initial Consent/[(Initial Consent) + (Refusal + Non-Contact + Other cases) + e(Unknown Other)], where “e” refers to an estimated proportion of cases of unknown eligibility that are eligible The proportion of Initial Consent over the total number of attempts has been defined as the gross recruitment rate, the equivalent to assuming e =1, its maximum admissible value: all uncertain cases are resolved as being eligible. Assuming e=0 (i.e. the minimum value which does not consider any of them to be eligible), the CES recruitment rate would equal 4.3% and its range would be 4.0-4.6%.

Chart 2.2

Sample composition, by country and sampling method; probability samples by recruitment mode; non-probability samples by online access panels



Source: CES – The latest observation is for December 2020.
Note: Unweighted recruitment pooled data.

In the recruitment stage a limited set of essential data are collected: the main socio-demographic characteristics such as age, gender, region, household size and internet use, as well as the availability of fixed line and/or mobile phones for those randomly recruited. Having expressed willingness to join the survey, all recruits provide an email address through which they are invited to start the online survey. The next step involves filling in the Welcome Survey (background module) to collect certain basic information – the nationality, education and household composition grid. Questions are also asked at this stage about individual preferences, behavioural attitudes on economic and financial matters as well as income. This module is intended to test and corroborate potential panellists' engagement. Once the background module is completed, participants are eligible to participate in the monthly CES questionnaires.

There are a considerable number of participants who drop out without starting the background survey. Their total incidence, around 36%, is relatively constant over time. It needs to be noted that their proportion is not associated with the sampling methods. Indeed, in the four biggest countries drop-outs are 33% both in PS and NPS, a rate that increases up to 43% in Belgium and the Netherlands. Conversely, the number of break-offs, defined as participants who start the module but do not complete it, has limited impact. Indeed, once started the background questionnaire has been completed in almost 90% of cases, implying that neither the contents of the questionnaire nor its length entails a particularly high burden for respondents.

Some differences by recruitment type emerge from the analysis of profiles for non-participation in the next survey modules. For example, it is relatively more frequent for men in the PS, while it mainly occurs for women in the NPS. Also, effects from age are not the same: drop-outs of those aged 65+ are observed more than for all other age groups as far as PS are concerned, while abandonment by younger recruits is particularly significant in the NPS. Other information has been useful in detecting good "predictors" for non-participation in the background questionnaire.

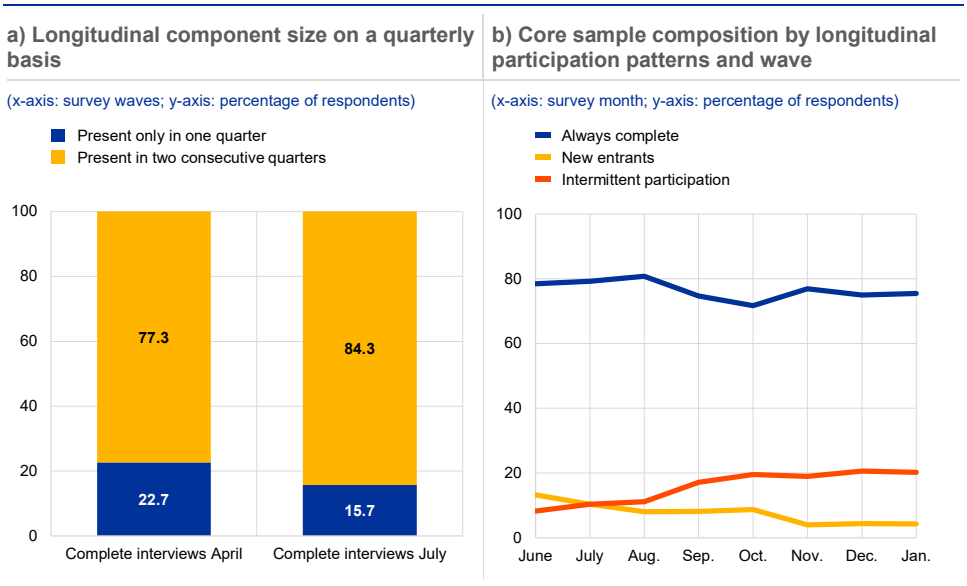
Among randomly sampled respondents, those contacted through a mobile phone are twice as likely to drop out. In the opt-in samples, fresh recruits are generally less prone to do so at this stage, though considerable country-specific effects are present.

Once the background survey is completed, respondents are eligible to participate in the monthly tasks. After the samples' building phase, completion rates for the core modules are around 56%, with a slightly decreasing pattern in the fourth quarter. Panellists' lowest completion rates (around 40%) are recorded in Belgium and the Netherlands. The results are higher in the four biggest countries, up to 66% in Italy, with higher performances for the PS.

Only a fraction of individuals remains inactive in all waves and does not contribute to the survey, corresponding to 12% among those randomly sampled, half the incidence observed in the NPS. Most of the active panellists complete their first core module in the same round as the background one – 93% in the PS and over 90% in the NPS. From a longitudinal perspective, it is worth noticing that panel participation is constantly high. Indeed, the retention strategies prove effective and the survey exhibits very low attrition rates: among those interviewed in April, 77% answered in July and 70% were still active in October. The longitudinal component is even larger between July and October, up to 84% of those participating in July (Chart 2.3 panel a).

Chart 2.3

Sample composition in core and quarterly module



Source: CES – The latest observation is for December 2020.
Notes: All countries. Age refers to age in December 2020. Always complete: completed core module in all waves after joining the panel. Intermittent: missed at least one of the preceding waves but participates in this wave. New entrants: completes the monthly module for the first time.

The same positive assessment can be drawn by looking at the sample composition by longitudinal patterns. By looking at all rounds after the building sampling phase, only a small and decreasing fraction of panellists is participating for the first time (*New entrants*). Although discontinuous activity characterised up to 21% of the

panellists according to most recent data, the vast majority – 75% – completed all the modules since their enrolment, denoting a very high degree of "loyalty" towards the survey and its objectives. The stability over time for those with *Always complete* as a longitudinal pattern and their sizeable proportion both on a quarterly and monthly basis. In turn, this feature has positive implications in terms of balanced panels and panel-data analysis, which is a strong point of the CES framework.

2.2 Sample representativeness and weighting

In probability samples, the random sampling mechanism is expected to ensure that the achieved sample reflects the target population. The deviation of unweighted samples reflects the sampling design (fixed/mobile frames), non-coverage of population (no internet access) and possible differential unit non-response. In non-probability samples, the sample is self-selected but purposive quota selection for each survey round (monthly modules) is used to achieve a final sample composition that reflects the target population by region, age, and gender[21]. Since participation in the panel requires an internet connection in both types of samples, there is systematic exclusion of this segment of the population[22].

Representativeness is assessed here by comparing how close the final sample composition is to the population benchmarks in various dimensions. Because the weighting scheme includes age, gender and region as calibration variables, the unweighted sample is compared to population benchmarks in these dimensions. For the other dimensions, weighted estimates are compared to relevant population benchmarks.

2.2.1 Weighting

Weights are constructed in four steps, by country and type of sample. For the PS, the design weights (base weights) take into account the dual-frame design described above, while for the NPS the design weights are not defined, and base weights are set to one.[23] These are then adjusted for non-participation in the background module by country and sample type. In the third step, these enrolment weights are adjusted to match population benchmarks by age, gender and region using raking ratio method. The adjustment models are the same for each country and type of sample. In the fourth step, for countries with both PS and NPS, blended weights are

[21] During the first months of CES recruitment, the objective was to achieve a balanced NPS sample with respect to age, gender and region. After a few months, the quota management became more active and based on the structure of the achieved monthly sample (and not the structure of the recruited sample). If the quota was full for the new recruits, they received a message informing them. For recruits from other access panels, recruitment requests were sent only to targeted respondents in non-full quota cells.

[22] The probability samples are dual-frame samples, but there is no stratification within a country.

[23] Design weight is the inverse of probability of selection, which is defined as (nf/Nf) + (nm/Nm), where nf and nm are sample sizes of mobile and fixed lines and Nf and Nm the corresponding population sizes. A simplifying assumption in the formula is that the expected number of people available per telephone line is 1 for both fixed and mobile lines. For a respondent who joined the panel in wave k, the selection probability is calculated as the sum of the k selection probabilities minus the product of the k probabilities.

constructed by combining the samples and re-calibrating to the original targets. The starting weights for blending are calibrated weights for the PS and enrolment weights for the NPS.

Table 2.2 illustrates the impact of weighting on the age distribution, using the same four age categories that are used as calibration targets. Consequently, the column "Core, blended weights" corresponds to the population age distribution. The unweighted shares are shown for recruitment, background and core samples, and indicate clear under-representation of the 71+ population in the unweighted sample. As expected, non-response and design adjustments (column "Core, enrolment weights") play a minor role in the adjustments compared to the calibration step. This results from the lack of information on the non-respondents.

Table 2.2
Distribution of the CES samples by age and survey module

Age	Recruitment, unweighted	Background, unweighted	Core, unweighted	Core, enrolment weights	Core, blended weights
18-34	30.8	27.7	22.0	22.8	23.7
35-54	40.8	43.5	46.1	45.2	34.3
55-70	23.5	24.4	26.9	26.2	24.8
71+	4.9	4.5	5.1	6.1	17.3
Total	100	100	100	100	100

Source: CES – December 2020.
Notes: All countries. Age refers to age in December 2020. Recruitment data: Initial consent expressed. Background data: completed questionnaire. Core data: completed interviews.

The sum of weights in each country corresponds to the target population and the sub-population aged 18-70 years.[24] The small and under-representative sample in the oldest age group results in high variation of the weights, which may result in unstable and inefficient estimates. To control for this, a trimmed version of calibrated and blended weights is available. Trimming redistributes extreme weights to the rest of the sample.

2.2.2 Variables in the calibration model: age, gender and region

Table 2.3 evaluates the representativeness of unweighted samples by age and gender separately for the PS and NPS and the three survey modules. The table shows the ratios between the share of each demographic group in the sample and the corresponding share in the population. Weights are calibrated to age and gender benchmarks, and therefore the weighted sample estimates correspond to population benchmarks for the pooled and probability samples (shown in the last column).

The main deviation from the population benchmarks is under-representation of the elderly in both samples, as noted earlier. The share of the age group 71+ in the sample is below 50% of the population share, while the middle-aged are over-

[24] Separate household weights were not constructed for the pilot data.

represented in both samples and in the final blended sample. The young (aged 18-34) are over-presented in non-probability recruitment.

In terms of the gender composition, females are over-represented in the non-probability samples in the recruitment and background modules, and this is still the case in the monthly modules which use quotas that take gender into account. In the NPS, almost 60% of those recruited are female and 40% male. This pattern is fairly similar in all countries, albeit with some variation (e.g. 34% male in Italy). The probability samples are somewhat more representative, considering sampling error which can be computed for the probabilistic samples.

Table 2.3

Ratio of unweighted sample shares to population shares, by age and gender, in probability and non-probability samples

	Survey share/population share							
	Probabilistic sample			Non-probabilistic sample			Blended sample	Population share
	Recruitment	Background	Core	Recruitment	Background	Core	Core	
Male	1.04	1.00	1.02	0.84	0.86	0.94	1.01	48.3
Female	0.96	1.00	0.98	1.15	1.14	1.06	0.99	51.7
18-34	1.08	1.04	0.94	1.37	1.36	1.13	0.99	23.1
35-54	1.30	1.35	1.37	1.24	1.28	1.37	1.36	34.6
55-70	0.99	0.98	1.05	0.90	0.86	0.96	1.02	24.8
71-	0.32	0.27	0.30	0.17	0.15	0.17	0.26	17.5
Total	1.00	1.00	1.00	1.00	1.00	1.00	1.00	100

Source: CES – The latest observation is for December 2020.
Notes: Unweighted and pooled data from core module. Belgium and the Netherlands not included.

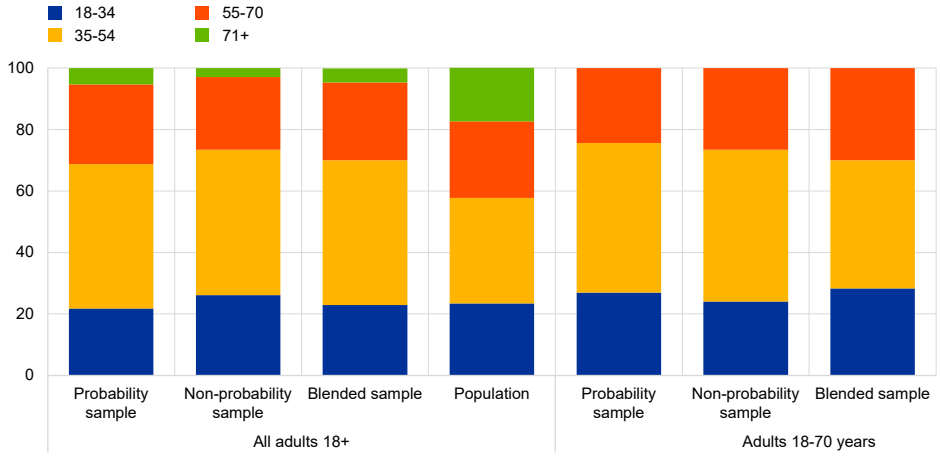
In the context of the ISCG, which was expressly set up to formalise the collaboration with experts across the ESCB, the team in charge of conducting the Bundesbank Online Panel – Households (BOP-HH) provided a complementary analysis for Germany.[25] Indeed, CES results were compared to the BOP-HH by the main socio-demographic characteristics. The comparison shows the under-coverage of elderly, affecting both CES sampling types; instead, an under-representation of the younger participants is reported in BOP-HH estimates. Also, the incidence of female respondents is lower in the BOP-HH sample than in official population statistics and an under-representation for East Germany is observed.

The age distributions in the completed CES monthly samples are further compared in Chart 2.4 for two target populations: all adults 18+ and adults 18-70 years. The left-hand side of the chart shows the under-representation of the elderly population in the sample. The right-hand side suggests that the unweighted sample is more coherent when considering the target population aged 18-70.

25 "Surveys of German consumers' expectations: a comparative analysis". Presented to the ISCG online meeting held on 25 February 2021. The BOP-HH is based on online interviewing for units recruited through telephone interviews. Data for September were used, corresponding to Wave 9 in both sources.

Chart 2.4

Unweighted sample shares, by age, in probability and non-probability samples

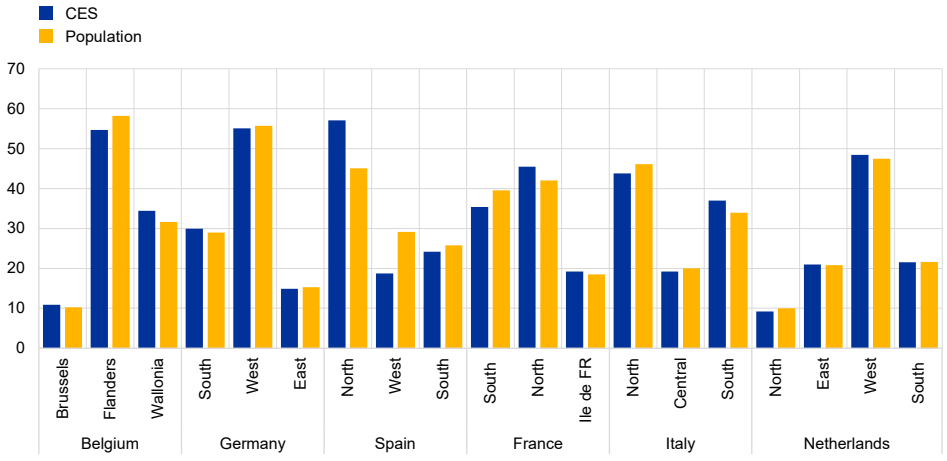


Source: CES – The latest observation is for December 2020.
Notes: Unweighted and pooled data from core module. Belgium and the Netherlands not included.

The third dimension that is controlled in the weighting and the NPS sample quotas is region. The unweighted sample shares satisfy the minimum requirement of 50% share of the population in the main sub-regions and are quite coherent with the population shares (Chart 2.5). The exception is Spain, where the unweighted sample has a markedly higher share of respondents from Northern Spain, both in the recruitment sample and the monthly samples. This deviation of the probability sample from the external benchmark requires further investigation.

Chart 2.5

Regional distribution of the CES samples



Source: CES – The latest observation is for December 2020.
Note: Unweighted and pooled data from core module.

2.2.3 Other variables: employment, education, household size and tenure status

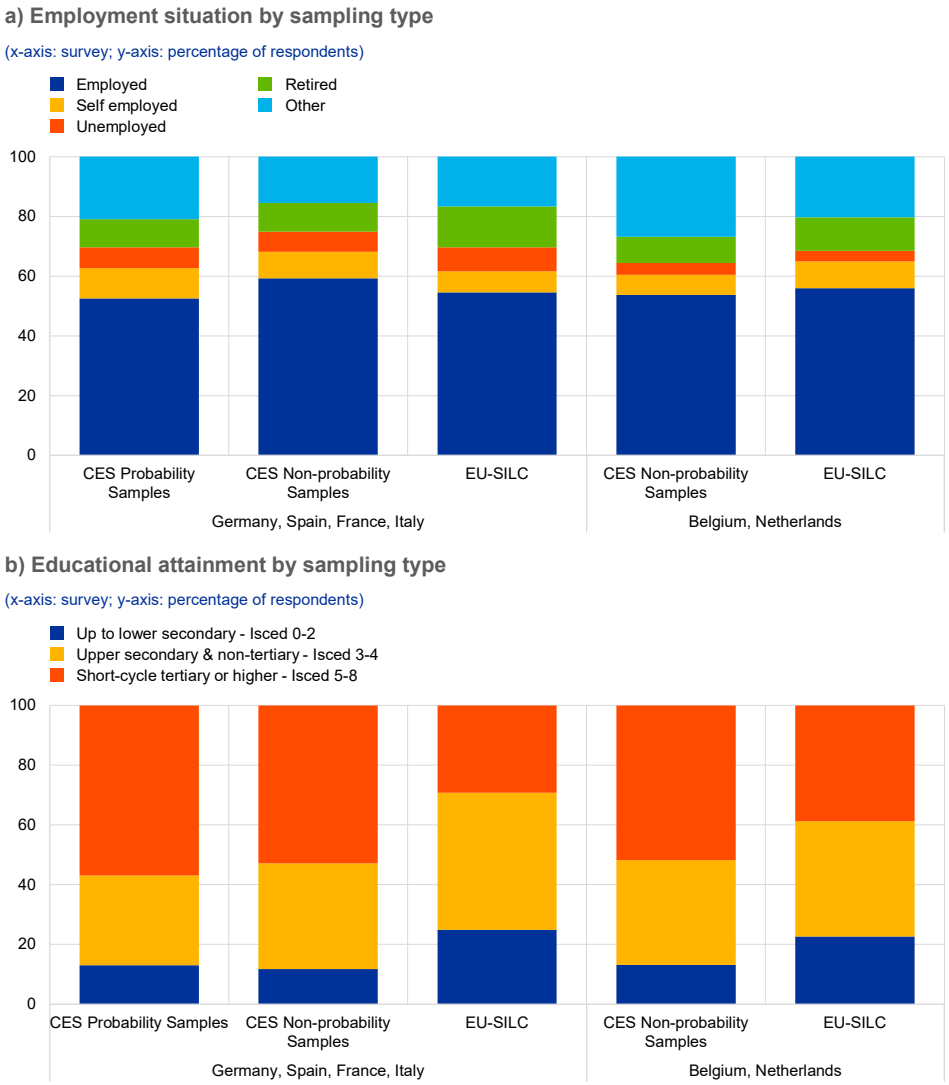
It is also worth comparing the distributions of a number of other characteristics with their related external benchmarks to obtain a complete assessment of the sample representativeness: notably employment and education at the individual level, and household size and tenure status of the main residence. This exercise is restricted to the 18-70 age groups, to avoid the effects of the under-representation of the elderly. These variables are validated by means of EU-SILC[26] estimates from 2018.

For employment status – a key survey variable – EU-SILC concepts and questions are better harmonised with CES features than Labour Force Survey (LFS) ones. Chart 2.6 shows that CES representation of the labour market broadly overlaps with EU-SILC results, despite the different time frames of the two surveys. In the four biggest countries, some deviations are observed for the employed between PS and NPS, with the first being closer to the external source. For the other two countries, NPS results deviate from EU-SILC, with a larger proportion of inactive people who are not retired (Chart 2.6, panel a)). In general, the CES samples exhibit some over-estimation of the employed and under-estimation of the retired in comparison to EU-SILC.

[26] EU statistics on income and living conditions.

Chart 2.6

Comparison of employment and educational attainment with EU-SILC



Sources: CES and EU-SILC – CES data from December 2020; EU-SILC data from 2019 survey operations.
Notes: Weighted data. Individuals aged 18-70.

As mentioned above, the online mode may induce selective coverage of the target population. It is possible that this kind of issue affects the distribution of educational levels observed in the CES. As shown in the right-hand side of Chart 2.6, the under-representation of those with the lowest educational attainments and – to a lesser extent – individuals who have completed secondary school, results in a much larger fraction of those who are highly educated. This bias is not associated with any particular sampling method or their internal composition, being in place for both sampling methods and across all countries, albeit to differing degrees. For example, low-educated respondents are heavily underrepresented in France and Spain – mainly in the NPS. At the same time, the PS in both countries shows scant participation of individuals with secondary education. In Germany, the PS is more unbalanced than the NPS, which, in any case, is far from being close to its reference value, according to the adopted benchmark. In Italy, the two types of sample are

very similar and heavily biased. Finally, in the NPS for Belgium the low-educated respondents are less than half the external benchmark, with the highest levels symmetrically over-represented.

It may be worth recalling that the weighting scheme does not include education among the calibration variables and that in the current questionnaire format, data on education are collected in the Welcome module. As a result, it is not possible to determine whether this under-representation occurs at the recruitment stage or is caused by the non-response to the background module. The possibility that the observed bias comes from a measurement error in relation to respondents' answers has been excluded.

In order to address this issue, a preliminary test on gathering background information via telephone could provide useful insights on the magnitude of selective non-participation due to the data collection mode effect, while preserving the current online design of monthly survey tasks. In turn, the possible mode effect could also be reduced by using more elaborate incentive schemes for respondents – such as providing the necessary equipment to potential participants without internet connections. In addition, improvements in weighting would complement all these possible actions. Finally, representativeness could be improved by through such things as tailored recruitment and surveying approaches to increase participation rates and mitigate under-coverage issues; viable options here could include, collecting information on respondents' education at the recruitment stage and monitoring their survey participation.

In the context of the ISCG, Alvargonzález and Villanueva (2021)[27] provided further insights into the Spanish PS component. Comparing the CES with estimates from the Economically Active Population Survey (*Encuesta de Poblacion Activa* – EPA), its weighted population is more educated (18 percentage points higher incidence of academic degrees) and more likely to be employed (a differential of 19 percentage points). Moreover, CES estimates for the median values of consumption expenditures and point inflation expectations, as along with the overall change across quarters in the median for both variables were relatively unaffected by the weighting. The opposite is true for those individuals without a college degree, whose results are sensitive to various reweighting schemes adopted to bring the CES's sample composition more into line with external sources[28].

Turning to the distribution of the population by household size in the CES, it is reasonably coherent with the EU-SILC estimates. The left-hand side of Chart 2.7

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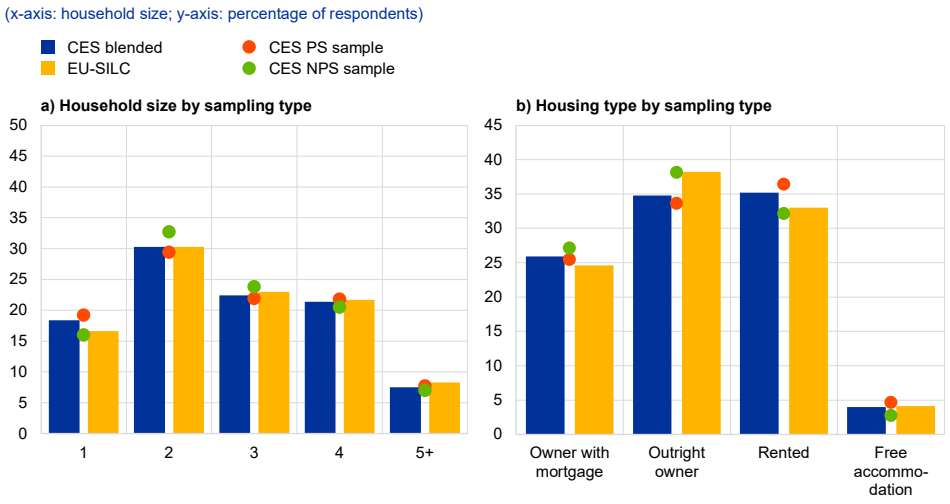
27 "Comparing the characteristics of Spanish ECB-CES respondents to alternative sources: assessing selection". Presented to the ISCG online meeting held on the 25/02/2021. For CES, quarterly participants in Waves 4 and 7 were selected and trimmed calibrated weights for the ES PS component were used. As for the EPA, its stratified probability sample is drawn from the continuous census survey units from the second and third quarters. It is worth pointing out that it was obtained through CATI, due to the COVID-19 pandemic. Another important difference between the two surveys involves the selected respondents: all members of a household are interviewed by the EPA, while all individuals aged 18 or over are eligible for CES probability sampling.

28 For this exercise, an alternative weighting scheme was introduced using EPA marginal distributions for employment status, education, age, gender and region. They also argue for a possible further overrepresentation of units with high financial literacy among CES participants, even after reweighting; in turn, it may affect the results for the inflation expectations both from a cross-sectional and longitudinal perspective.

shows the results of the weighted sample of the four largest countries. Overall, there appears to be some over-representation of one-person households and under-representation of larger households in the blended sample. There is, however, variation in the coherence across the countries as well as between probability and non-probability samples. For instance, the results for Germany suggest better coherence of the probability sample, while the reverse is the case for France.

Chart 2.7

Comparison of household size and housing type with EU-SILC



Sources: CES and EU-SILC – CES data from December 2020; EU-SILC data from 2019 survey operations.
Notes: Weighted data. Belgium and the Netherlands not included. Individuals aged 18-70.

Finally, Chart 2.7, panel b), shows the distribution of housing tenure status compared to EU-SILC sample estimates. Despite being restricted to the population aged 18-70, the high share of outright owners among the elderly does not affect the comparison. While the results are broadly in line, the CES weighted sample appears to somewhat overestimate the share of renters and under-estimate the share of outright owners compared to EU-SILC. It must be noted that the EU-SILC estimates are also based on sample surveys and are therefore subject to sampling error. The over-estimation of renters in the CES derives from the probability samples, and this holds also when controlling for CES sampling variation. At country level, however, the picture is less clear. For instance, in Germany both samples (PS and NPS) yield very similar distributions, while in France and Spain renters are over-represented in probability samples.

2.2.4 Main differences between sampling methods

In the four largest countries, the CES estimates are derived by combining the probability and non-probability samples and using the blended weights for estimation. In the weighting process, selected key variables are compared from both the blended samples and the probability samples in order to evaluate whether the addition of non-probability samples might introduce bias to the results, i.e. treating the probability samples as the reference samples. This is motivated by the

theoretical advantages and also often observed empirical benefits of random probability sampling for sample representativeness (Baker et al., 2013; MacInnis et. al, 2018; Wisniowski et. al, 2020). Box 2 discusses the differences between the CES sampling methods, focusing in particular on response behaviour and measurement discrepancies.

The previous sub-sections already covered differences in sample compositions, non-response and non-participation between the PS and NPS. The comparisons of the pooled euro area sample with the external benchmarks indicate reasonable coherence in most dimensions for both types of sample. However, at country level more sizeable and non-systematic deviations are observed. It is therefore not easy to judge whether the NPS samples are consistently less representative than the PS samples, as one might expect. Some variables, such as education and income, suffer from similar problems in both samples, suggesting that the issues are related more to measurement or the data collection mode. The under-coverage of the elderly is also common to both sample types and results most likely from the exclusion of people who do not have an internet connection as well as refusals/non-participation in the recruitment phase.

A potential sample composition factor that might be related to accuracy of measurement is the share of the newly recruited respondents in the panel. As already noted, the non-probability sample is based on a mix of existing access panel respondents and newly recruited respondents. To avoid having too many experienced respondents from existing access panels, participating in the survey perhaps for the financial incentives, the share of freshly recruited panellists was planned to be at least 30% of the total non-probability sample. This was the case in Spain, France and Italy in Wave 12, while in Germany, Belgium and the Netherlands, the newly recruited shares were lower (less than 10%).

Table 2.4

Some features of sample and response behaviour, by type of sample and access panel

	Sample size (percentage of total sample)	Median number of web surveys taken before	Median interview time in core module, minutes	Respondents who considered answering was difficult or very difficult	Device used: smartphone	Device used: computer	Device used: tablet or other device
Probabilistic	6,035 (57.9%)	2	13.9	17%	41%	51%	8%
Non-probabilistic	4,393 (42.1%)	10	8.8	14%	25%	68%	7%
Non-probabilistic, newly recruited	805 (7.7%)	3	7.3	15%	40%	52%	8%
Non-probabilistic, existing access panel	3,587 (34.4%)	10	9.1	14%	22%	71%	6%
All	10,428 (100%)	3	11.1	16%	34%	58%	8%

Source: CES – December 2020 data.
Notes: Unweighted data. Survey could be answered by smartphone, computer, tablet or other devices.

The experienced respondents largely come from an existing access panel, who had already taken ten web surveys on average in the four largest countries (Table 2.4). The corresponding median value for the newly recruited respondents is three, while for the probabilistic sample it is two. The probability samples have slightly more respondents who consider the questionnaire difficult. Moreover, respondents in the existing access panels tend to use a computer more when answering, while the newly recruited and PS respondents use a smartphone more often. As is further explained in Box 2, one of the consistent differences between the PS and NPS, is the markedly shorter length of the interviews in the non-probability samples. Spending less time on the questionnaire may signal quality issues related to measurement rather than sample composition by the observable dimensions, such as age, gender or region.

Box 2
Probability and non-probability samples in the CES

A key quality dimension in surveys is external validity, i.e. that the results are reproducible and generalisable outside of the sample. Both are theoretical advantages of random probability sampling, which also allows inference on finite population values accounting for the features of the sample design. In non-probability sampling, non-random selection (self-selection or purposive selection) renders design-based finite population inference inappropriate, and valid inference requires modelling assumptions which may not be easy to verify (Elliot and Valiant, 2017; Baker et. al., 2013; Mercer et al. 2017). However, random probability samples with high and differential unit non-response are also reliant on modelling (reweighting) to mitigate the possible unit non-response bias.

Empirical benchmarking studies tend to show that probability samples are more accurate than non-probability samples for descriptive population estimates (MacInnis et al., 2018; Wisniowski et al., 2020). In the CES, as discussed in Section 2, the probability and non-probability sample compositions differ from the external benchmarks in such a way that one cannot conclude that non-probability samples are consistently less representative than probability samples for employment, household size and housing tenure status, after both are weighted for age, gender and region. However, there are differences in the sample compositions, in particular at the country level, and further investigation of these is needed. This box discusses the main findings characterising unit non-participation across monthly survey modules. It highlights also some observed differences in measurement and response behaviour between the probability and non-probability samples, such as interview length, item non-response and consistent measurement differences in key expectation variables. These differences between the two sample types may also be due to unobservable characteristics.

Unit non-response across modules

In the CES, initial unit non-response cannot be investigated, as there is no prior or auxiliary information on non-respondents. Non-participation also arises from drop-outs from the background survey. Non-probability sample participation rates in the four biggest countries are aligned with what is currently observed for the probability sample. Some differences by recruitment type emerge from the analysis of profiles for the background non-participation by main socio-demographic characteristics. Non-participation is relatively more frequent for men in the probability sample, while

it is more prevalent for women in the non-probability sample. Also, age effects are different across the two samples. Drop-outs of the elderly are observed more than for all other age groups in the probability sample, while abandonment by younger recruits is particularly significant in the non-probability sample.

Once the background survey is completed, respondents are eligible to participate in the monthly CES surveys. After the samples' building phase between January and June, the completion rate of the probability sample by wave was on average at 63%, 5 percentage points higher than for the non-probability sample in the same countries. The completion rate in the two smaller countries (Belgium and the Netherlands) was much lower, at 40%. The main effects of this further source of unit non-response are similar to those of the background module. In addition, abandonment by low-educated respondents is significantly more likely for the non-probability sample. As for the probability sample, individual and household economic characteristics do not have significant effects on non-participation behaviour, leading to the conclusion that there is no self-selection process related to these characteristics.

From a longitudinal perspective, the survey shows very low attrition rates both on a monthly and quarterly basis. For example, in the December 2020 wave, the proportion of panellists taking their first interview is low across all sampling types, at 4.4% for the whole survey and at 5.6% for the probability sample. By looking at the longitudinal patterns, 74% of non-probability panellists have completed all monthly rounds against 69% in the probability sample. Thus, probability panellists exhibit discontinuous participation slightly more frequently.

Interview length and survey response behaviour

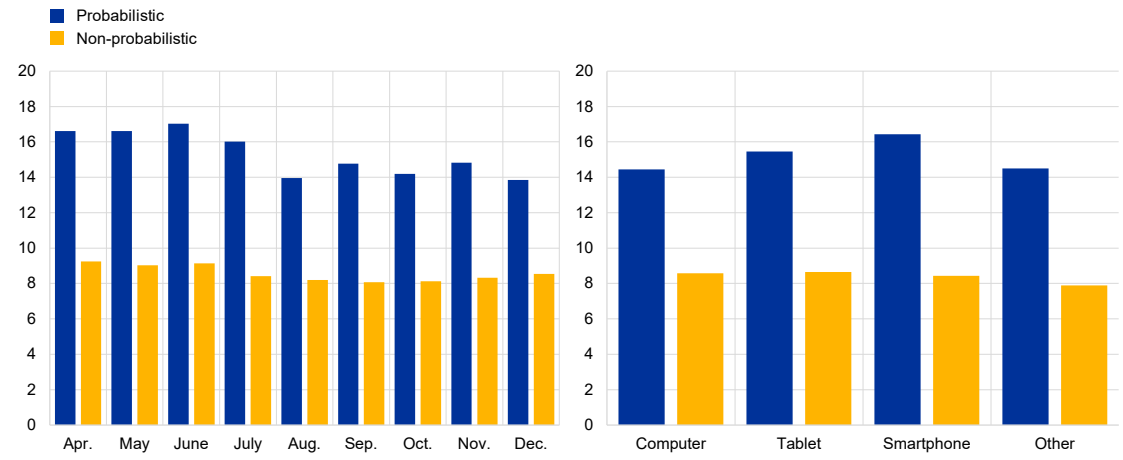
When looking at the differences in interview length, a first difference that emerges from the two samples is that panellists in the probabilistic sample take considerably more time to complete the interview compared to the non-probabilistic sample. This is true across all the waves and all the countries (Chart A, left-hand side).

The CES can be completed by respondents with a variety of devices, such as a computer, tablet or smartphone. Respondents from the non-probability sample mostly access the survey from a laptop, while respondents from the probability sample do so more often by smartphone. However, the device used to complete the survey does not seem to play any part in explaining the differences in the time spent completing the survey, since the contrast in interview length across the two different samples exists across all devices (Chart A, right-hand side).

Chart A

Time spent on the core questionnaire

(median number of minutes)



Source: CES – The last observation is for December 2020.
Notes: Comparisons include countries with both sampling types: DE, ES, FR, IT. The length of the interview is computed considering only the core module for those respondents who complete the questionnaire without breaking off. Right-hand side includes pooled data from April to December.

In addition to the time spent on the questionnaire, respondents from the two sampling types also differ in when they access the survey, once a new monthly module becomes available. During the period April to December 2020, 50% of respondents from the non-probability sample responded in the first two days of fieldwork, while the response among the probability sample respondents is more evenly distributed over time, with slightly less heaping at the beginning of the fieldwork period and 50% responding after the first week.

There are differences in the CES in item non-response behaviour between sampling types, with the non-probability sample showing a lower share of item non-response than the probability sample (see Table A), consistently across the waves. The differences are particularly striking in cognitively more demanding questions, such as the probabilistic band questions which are skipped by more than 15% of panellists in the probability sample against only 0.2% in the non-probability sample. However, similar to the findings of Cornesse and Blom (2020), there are clear differences in straight-lining behaviour in the CES. In addition, non-probability respondents are prone to mid-point selection in probabilistic slider questions. They also tend to have less differentiated responses for the grid question compared to the probability sample. A frequent and well-documented concern in survey design across all survey modes are ordering effects of response options on the answers given by survey participants (e.g. Krosnick and Alwin, 1996; Galesic et al., 2008). In the CES, several tests on understanding the impact of the item and response order on answer choices have been implemented. While there are response order-effects differences in behaviour, these are not explained by the sample recruitment type.

In addition, a large share of “speeders” in the non-probabilistic sample indicates a lower cognitive investment, suggesting a less accurate measurement of economic concepts. In turn, statistics derived solely from the non-probability sample component might be biased due to inaccurate measurement. This indicates significant self-selection in response behaviour, warranting further investigation and testing.

Table A

Differences in response behaviour

(percentage of respondents)

Measure	Probability sample	Non-probability sample
Speeder (below five minutes total time)	2.9	14.7
Completion of survey without break	88.0	87.4
Avoidance of subsequent questions	5.2	3.7
Share rounding open-ended expectations	39.5	32.6
Avg. share end point expectation responses	0.6	0.5
Non-response to probabilistic questions	6.9	0.1
Avg. share using only one bin	36.4	34.3
Non-differentiation in grid question	18.2	29.5
Non-differentiation across expectations	12.4	10.3

Source: CES – The latest observation is for December 2020.
Notes: Pooled across waves. Comparisons based on countries with both sampling types: DE, ES, FR, IT. Unweighted responses. Respondents can avoid subsequent questions by selecting the option of no expected change which is actively discouraged by making clear this would mean a change of precisely zero (not "about" which invites the respondent to neglect small changes). Avoidance is measured as selecting a precisely zero change for all seven qualitative filtering questions. Rounding behaviour is measured as a response multiple of five. The grid question asks respondents about trust in institutions on a scale of 0-10 featuring four institutions in total.

Measurement differences

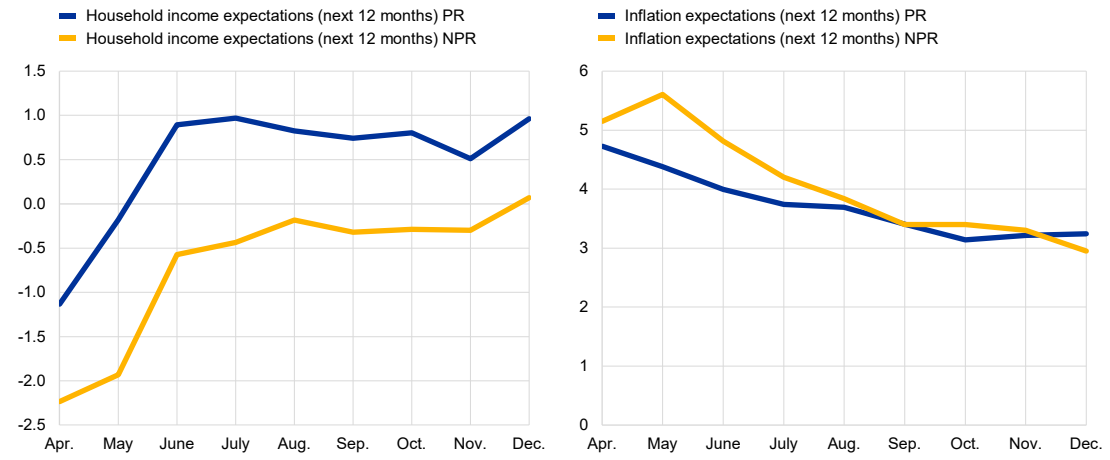
Beyond respondents' demographics, probabilistic and non-probabilistic respondents in the CES differ systematically with respect to key background characteristics measured by the survey. Respondents from the non-probability sample are more likely to be the financial decision-makers in the household, to own a house, self-report insufficient liquidity buffers and be more risk-averse compared to probabilistic respondents once potentially confounding individual characteristics are taken into account. At the same time, the sampling type does not seem to be systematically related to respondents' financial literacy.

Respondents of the probability and non-probability samples also show consistent measurement differences in key expectation variables (see Charts B and C). Some of these level differences seem to be constant over time which suggests that they are driven by potentially unobserved individual-level differences. Owing to the panel dimension of the survey, the CES allows control of such persistent differences. In particular, non-probability respondents have a more pessimistic household-level and macroeconomic outlook. On the individual level this is also reflected in a more positive financial sentiment. From April to December, a certain degree of convergence for inflation expectations is observed among both sampling types.

Chart B

Differences in income and inflation expectations over the next 12 months

(percentages)

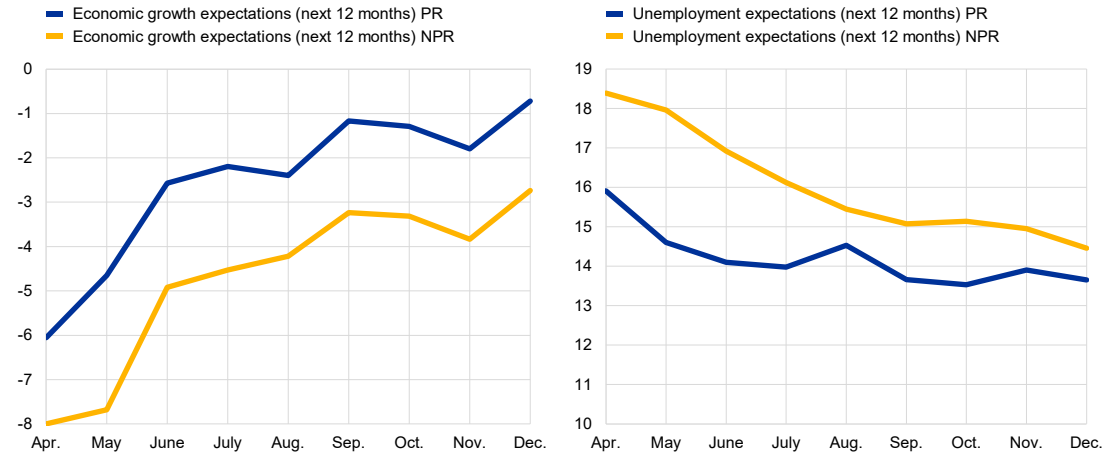


Source: CES – The latest observation is for December 2020.
Notes: Weighted data, using calibrated and trimmed weights for the sampling types. Comparisons include countries with both sampling types: DE, ES, FR, IT.
Questions asked: (a) *By about what percent do you expect the total net income of your household to increase/decrease? (b) How much higher/lower do you think prices in general will be 12 months from now in the country you currently live in?*

Chart C

Differences in growth and unemployment expectations over the next 12 months

(percentages)



Source: CES – The latest observation is for December 2020.
Notes: Weighted data, using calibrated and trimmed weights for the sampling types. Comparisons include countries with both sampling types: DE, ES, FR, IT.
Questions asked: *(a) During the next 12 months, by how much do you think the economy will grow/shrink? (b) What do you think will be the unemployment rate 12 months from now in the country you currently live in?*

Recent evidence by Binder (2019) highlights that past participation in expectations surveys might alter subsequent response behaviour (panel conditioning). Preliminary analysis shows that the CES features panel conditioning similar to that seen in the New York Fed's SCE even after individual characteristics and wave-specific trends are taken into account. However, there appears to be no systematic difference between the two sampling types in this regard.

3 Consumption, income and savings

Decisions about consumption are crucial determinants of business cycle fluctuations. In 2019, private consumption accounted for 54% of euro area GDP and was by far the largest expenditure component. While consumption is usually less volatile than other expenditure components, because of the weight it carries, household consumption decisions are crucial determinants of the propagation of macroeconomic shocks, as well as fiscal and monetary policies. Traditionally, income has been considered one of the main drivers of consumption decisions, as exemplified by the Keynesian consumption function.[29] The availability of high-quality and timely data on consumption, income and savings (and wealth) has been a determining factor of economists' understanding of consumption dynamics over the past decades. Moreover, in forward-looking models, the ability to distinguish between transitory and more persistent changes in income, is seen as particularly important for understanding consumption and savings behaviour.

Research on the drivers of consumption has evolved continuously over the past decades, in line with methodological advancements. Research on consumption dynamics has long used information from aggregate time series.[30] In the 1980s, however, it became clear that the identification of the structural parameters determining consumer behaviour often relied too strongly on assumptions about aggregation, invalidating estimates based on aggregate data only.[31] Therefore the profession increasingly turned to micro data to better understand consumption dynamics. While high-quality micro datasets were still scarce in the 1980s, the development of new surveys has helped to overcome some of these hurdles. In the United States, for example, the Consumer Expenditure Survey became a continuous survey collecting information on household spending and, around the same time, the European Commission started its harmonised monthly consumer sentiment survey. The widespread access to telephone landlines made it easier to gather household-level information at a relatively high frequency and in a timely manner. Still, until recently it remained challenging to collect *integrated* micro data, referring to one and the same household's consumption, income and saving/wealth.[32]

The CES should ensure that monetary policymakers' understanding of consumption is based on an information set that is as complete as possible. The widespread use of the internet has created new opportunities to collect high-quality and timely data on consumption, income and savings/wealth. The improved timeliness due to the online nature of the survey has made it easier to integrate micro data into the real-time analysis of ongoing consumption dynamics which supports the ECB's monetary policy decisions. Heterogeneity across households has recently been recognised as an important determinant of macroeconomic propagation (cf. Ahn et al., 2018) and

29 Keynes J.M. (1936), *The General Theory of Employment, Interest and Money*, London, Macmillan.

30 See Flavin (1981), Campbell and Mankiw (1989, 1991), and Hansen and Singleton (1983).

31 See Attanasio and Browning (1995), Blundell et al. (1994), and Attanasio and Weber (1993).

32 Some authors have tried to overcome these hurdles through so-called "statistical matching techniques". See, for example, Lamarche et al. (2020) for euro area countries.

the CES ensures that policy makers can benefit from insights that consider important differences amongst households. This section gives an overview of the key variables collected on consumption, income and savings during the CES pilot phase, as well as some first insights. Box 3 summarises recent analysis of consumption developments using the CES pilot data focusing on the COVID-19 crisis.

3.1 Consumption

3.1.1 Consumption developments over time

Table 3.1
Household spending over time

Description	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
Qualitative questions: percentage of respondents who…									
… think their household spending has decreased in the last 12 months	18.4	23.5	23.4	21.9	22.1	22.2	21.6	24.2	24.0
… expect their household spending to decrease in the next 12 months	19.1	17.0	16.4	15.5	16.1	14.3	14.6	14.5	13.9
Quantitative questions: average across respondents (percentage changes)									
Perceived change in household spending in the past 12 months	1.9	1.1	1.0	1.3	1.2	1.0	0.8	0.6	0.4
Expected change in household spending in the next 12 months	1.7	2.1	1.8	1.8	1.7	1.7	1.4	1.5	1.6

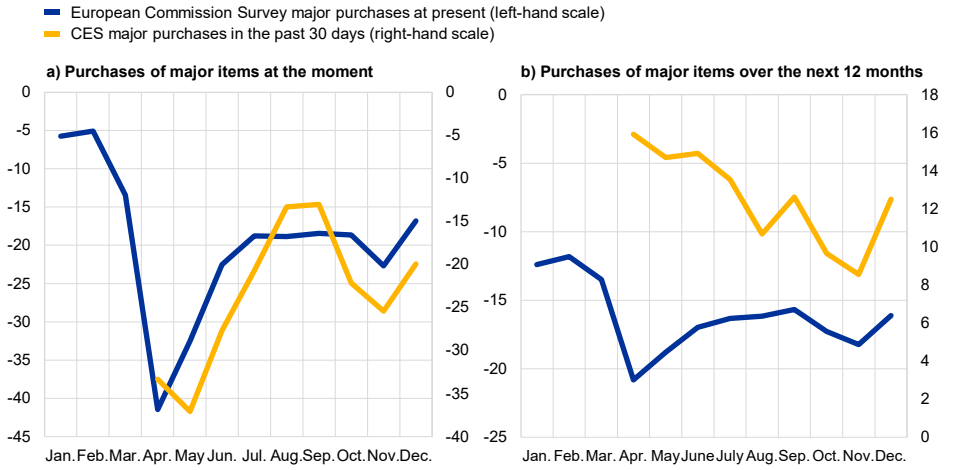
Source: CES – The latest observation is for December 2020.
Notes: Weighted data. Quantitative data are winsorised at the 2nd and 98th percentiles.
Qualitative questions (most recent version): (a) *We are interested in understanding how your household spending may have changed compared with 12 months ago. Even small changes in the amount your household has spent are of interest. Compared with 12 months ago, what do you think has happened to your household spending?* (b) *During the next 12 months, how do you expect your household spending on all goods and services to compare with your spending in the past 12 months? Even very small changes in the amount your household will spend are of interest.*
Quantitative questions (most recent version): (a) *How much higher/lower do you think your household spending is now compared with 12 months ago? Please give your best guess of the change in percentage terms.* (b) *By what percent do you expect your household spending on all goods and services to change during the next 12 months compared with your spending in the past 12 months? Please give your best guess of the change in percentage terms.*

As with other surveys, the time profile of recent consumption dynamics is captured well by the questions on consumption. CES data show that the share of respondents reporting lower consumption in the past 12 months increased significantly since April 2020, in line with the sharp drop in consumption in 2020. The results from the forward-looking questions remained more stable, as at the time of surveying, respondents did not necessarily anticipate further adverse shocks in the next 12 months. The CES also asks respondents about their quantitative assessment of past and future consumption. While weighted averages of future consumption growth remained relatively resilient, past consumption growth declined more between April and December 2020. Still, compared to aggregate statistics, the drop in average consumption growth in the CES remained relatively limited. This could be related to the use of population weights, which does not account for the level of consumption of individual households. This conjecture seems to be in line with evidence that higher-income households reduced their consumption by more than low-income households during the COVID-19 crisis.

Chart 3.1

Consumption comparison between the CES and the European Commission survey

(net balance of respondents)

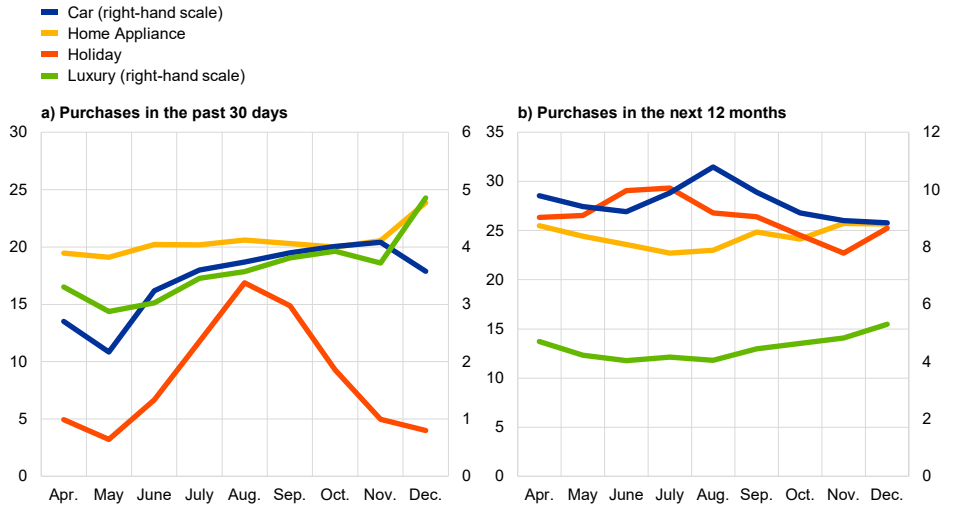


Source: CES – The latest observation is for December 2020.
Notes: Weighted data. Data for the CES represent the net percentage of respondents who bought in the past 12 months (panel a)) or plan to buy in the next 12 months a major item (panel b)). The European Commission survey refers to the 19 euro area countries.
Questions asked: (a) CES: *Which of the following have you purchased in the past 30 days?* European Commission survey: *In view of the general economic situation, do you think that now it is the right moment for people to make major purchases such as furniture, electrical/electronic devices, etc.?*
(b) CES: *Which of the following do you plan to purchase in the next 12 months?* European Commission survey: *Compared to the past 12 months, do you expect to spend more or less money on major purchases (furniture, electrical/electronic devices, etc.) over the next 12 months? I will spend….*

A comparison of the CES with the European Commission survey enables an understanding of the validity of the CES data to be gained. The Commission survey tracks the perception of households on whether it is currently a good moment to purchase a major item such as: furniture, electrical devices, etc. The CES asks more direct questions referring to whether a major purchase happened or not in the past 30 days. Chart 3.1 displays the net balance of respondents for both surveys and documents how well the CES mirrors the longer-established Commission survey in relation to major purchases at the moment. For the forward-looking question, respondents in the CES show more optimistic expectations in terms of willingness to purchase a major item in the next 12 months.

While the Commission survey provides information on a monthly frequency for consumption of major purchases pooled together, the CES offers the chance of analysing –on a monthly basis – the consumption behaviour over the last month and expectations about consumption in the next 12 months of specific items: a house, a car, home appliances, holidays, and luxury items. Data from April to December show a relatively low share of respondents buying such items in April and May, when lockdown restrictions were very tight, while during the summer these shares increased again as containment measures were eased. Even when lockdown measures were eased, the share of households expecting to buy non-necessities in the future decreased. Neri and Zanichelli (2020) and Rondinelli and Zanichelli (2020) find similar results when analysing responses from an online survey conducted in Italy during the COVID-19 crisis, attributing these developments to the fear of infection.

Chart 3.2
Consumption of specific items



Source: CES – The latest observation is for December 2020.
Note: Weighted data.
Questions asked: (a) *Which of the following have you purchased in the past 30 days?*
(b) *Which of the following do you plan to purchase in the next 12 months?*

3.1.2 Structure of consumption expenditure

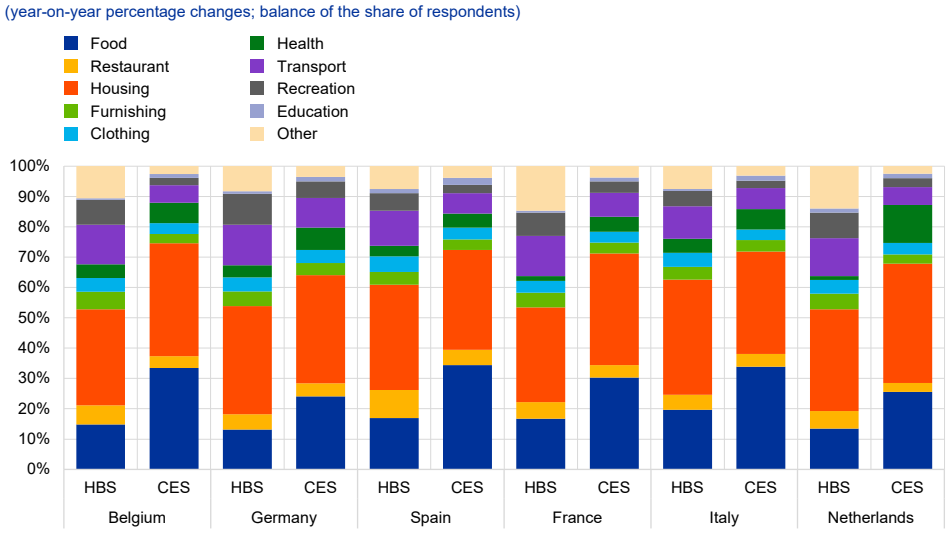
Survey questions covering a broad set of expenditure categories try to measure total consumption levels. Each quarter respondents are asked a question which requires them to enter the amount of money spent on a set of different consumption items. The visual interface also allows the respondent to see the total reported consumption. Once they have filled in the amounts for each item, before moving to the next question, a reconciliation screen invites respondents to revise the amounts they have entered after considering the total reported consumption. This question design has been used in other surveys, like the American Life Panel Survey (Hurd and Rohwedder, 2015). From the first rounds of the CES the total reported average consumption in the first screen and in the second screen do not differ significantly. The same holds true for other statistical measures, such as median consumption and standard deviation. More than 70% of respondents do not change their values between the two screens and this is consistent across the waves.

The composition of consumption allows for a comparison between the CES and the Household Budget Survey (HBS). While the most recent round of the HBS was collected in 2015, the CES allows changes in consumption baskets to be measured on a quarterly basis. Nevertheless, comparing the shares of the different items out of total consumption leads to interesting results. Items like housing, education and clothing display roughly the same shares across the two sources (see Chart 3.2). Given that the HBS was conducted before the COVID-19 outbreak, the shares of consumption in transport, restaurants and recreation are significantly higher compared to those in the CES. This is likely attributable to the lockdown measures imposed in the months during which the CES was conducted. In fact, the shares of

the underrepresented items, like expenses in restaurants, transportation and recreation increased again from July to October across all countries, in line with the easing of lockdown restrictions.

Chart 3.3

The household consumption basket in the CES and the HBS



Sources: CES and HBS – CES latest observation is for October 2020 and Household Budget Survey is for 2015.
Note: Weighted pooled data for April, July and October.
Question asked: *During the last month how much did your household spend on goods and services on each of the individual components listed below?*

Looking at expenditure patterns across different parts of the income distribution, the CES data shows that necessities have a higher weight in the consumption basket of low-income households compared to richer ones. On average between April, July and October, households at the bottom of the income distribution spent around 80% of their total consumption on necessities (food, utilities, health, communication and education) against 72% for those in the top quintile of the income distribution. These shares were higher in April for all households (84% for the first income quintile – 78% for the fifth income quintile) compared to October (77% for the first income quintile – 67% for the fifth income quintile). These figures reflect the easing of lockdown restrictions that took place during the summer season in most European countries. The CES shows how the share of consumption in items subject to lockdown measures (such as: expenditure on restaurants, transportation and holidays) increased for all households from April (10% for first income quintile – 15% for the fifth income quintile) to October (14% for the first income quintile – 22% for the fifth income quintile), but to a higher extent for high-income households (cf. Dossche et al. (2021).

3.2 Income

3.2.1 Income developments over time

Table 3.2
Households' financial situation and economic outlook

(percentages)

Description	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
Qualitative questions: percentage of respondents who…									
… expect the economy of the country they live in to shrink	66.3	61.0	52.5	49.8	51.1	44.1	44.5	46.4	40.2
…think their household is worse off compared with 12 months ago	35.8	36.6	33.8	31.9	31.9	29.1	28.2	28.0	27.7
…expect their household to be worse off in 12 months	39.9	33.6	28.6	27.4	28.3	24.4	24.8	25.8	23.7
…expect their household's net total income to decrease in the next 12 months	33.4	28.6	24.6	23.8	24.3	21.8	21.9	22.3	21.3
Quantitative questions: % changes									
Expected growth in the economy in the next 12 months	-6.6	-5.3	-3.3	-3.0	-3.2	-1.9	-2.1	-2.5	-1.4
Expected growth in household net income in the next 12 months	-1.4	-0.7	0.3	0.4	0.3	0.4	0.4	0.2	0.6

Source: CES – The latest observation is for December 2020.
Notes: Weighted data. Quantitative data are winsorised at the 2nd and 98th percentiles.
Qualitative questions (most recent version): (a) *We are interested in your opinion on how the economy of the country you currently live in will do in the future. During the next 12 months, I expect the economy of the country I currently live in to….* (b) *Do you think your household is financially better off or worse off now than it was 12 months ago?* (c) *And looking ahead, do you think your household will be financially better off or worse off in 12 months from now than it is today?* (d) *In the next 12 months, what do you expect will happen to your household's total net income?*
Quantitative questions (most recent version): (a) *During the next 12 months, by how much do you think the economy will grow/shrink? Please give your best guess of the expected change in percentage terms. You can provide a number up to one decimal place.* (b) *By about what percent do you expect the total income of your household to increase/decrease? Please give your best guess of the expected change in percentage terms. You can provide a number up to one decimal place.*

The CES contains both qualitative and quantitative information in relation to household income and economic growth. Table 3.2 shows a summary of recent changes in how households assess their financial situation and economic growth. In line with the economic scenario in 2020, in April and May households were very pessimistic about the economic situation, which then gradually improved as lockdown restrictions were relaxed again in the course of the summer. In October and November, most indicators worsened again, as new restrictions were implemented to contain the second wave of COVID-19 infections in the euro area. In addition to the qualitative questions, the CES also provides quantitative measures of households' income and growth expectations.

Quantitative measures provide real-time information on important aggregate developments. Quantitative measures also provide information on the *intensity* of certain economic developments at the household level. The quantitative measures of expected household income and economic growth reveal that households have been less pessimistic about their income than about economic growth, which reflects the extent to which household income has been supported by fiscal transfers. These findings are in line with aggregate evidence from the national accounts and the quarterly sector accounts. Still, the evidence from the CES has been available

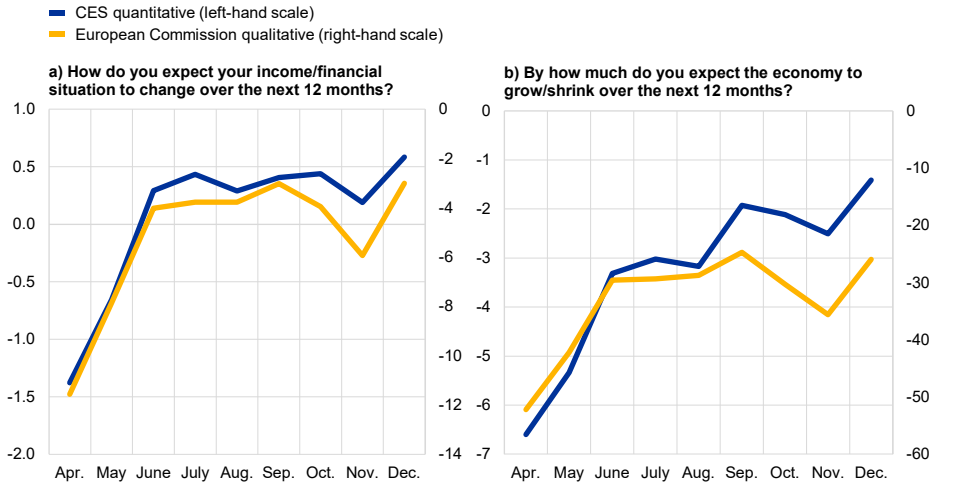
almost in real time, whereas aggregate statistics could only reveal such patterns with a lag of several months.

Expectations about future income in the CES have been closely aligned with existing household surveys. Chart 3.4 compares the quantitative measures of income and economic activity with the qualitative measures from the EC's consumer survey. While the units are different, the time profile in 2020 has been very similar.[33]

Chart 3.4

Economic growth and income expectations

(percentage change of income over the next 12 months; right-hand scale: net percentage balance)



Sources: CES and European Commission survey – The latest observation is for December 2020.
Notes: figures for the European Commission survey represent net percentages, i.e. the difference between the percentage of respondents expecting an increase in their income/in the general economic situation and the percentage expecting a decrease in their income/ in the general economic situation.
CES data are weighted and winsorised at the 2nd and 98th percentiles. The European Commission survey refers to the 19 euro area countries.
CES questions (most recent version):
(a) *By about what percent do you expect the total income of your household to increase/decrease? Please give your best guess of the expected change in percentage terms. You can provide a number up to one decimal place.*
(b) *During the next 12 months, by how much do you think the economy will grow/shrink? Please give your best guess of the expected change in percentage terms. You can provide a number up to one decimal place.*

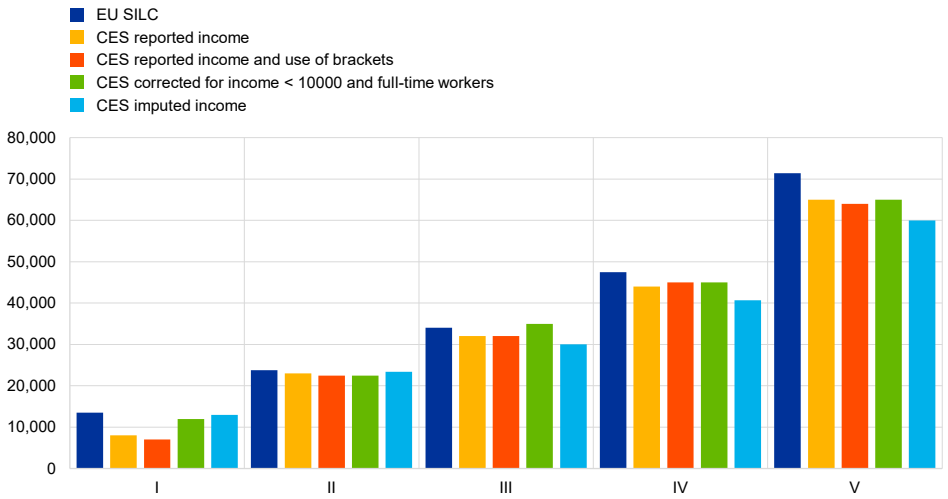
3.2.2 Distribution of household income

The CES is well-suited to document income disparities across several dimensions. The integrated nature of the CES dataset allows users to analyse differences in income across numerous dimensions, such as age, education, gender, labour contract and employment status. As the distribution of income has received a lot of attention both in the recent literature on macroeconomic propagation and in the literature on the drivers of inequality, the remainder of this section focuses on how the CES can capture important aspects of the income distribution per se.

[33] For similar evidence from Italy, see Rondinelli and Zanichelli (2021).

Chart 3.5
Income distribution

(x-axis: income quintiles; y-axis: EUR)



Sources: CES and EU-SILC – The CES latest observation is for December 2020.
Notes: EU-SILC data from 2018. CES weighted pooled data from April to December. EU-SILC weighted data. Data represent medians within each income quintile for both data sources.

The CES initially collected information on yearly net household income. It is common for questions on income in household surveys to suffer from a high degree of item non-response. One way to reduce this is to ask initial non-respondents follow-up questions to give a more general approximation of their income using income brackets. This approach proved quite effective for the pilot survey: up to December 2020 continuous income values were provided by 54.8% of the participants, while an additional 30.4% reported their income in brackets. As a result, less than 15% of respondents preferred not to give any information on their income.

An analysis of valid responses in the pilot CES raised some concerns on the distributional properties of the income distribution. A considerable number of households reported annual income of less than €10,000. Given information on other household characteristics (e.g. family composition, consumption), it seemed likely that some respondents had misunderstood the question, reporting monthly income instead of annual income. To address this issue respondents have recently been asked about their preferred time horizon over which to report their income, i.e. monthly or annual. Most respondents preferred reporting their income on a monthly basis when offered this choice. In addition, the extent of missing values also declined using this more flexible approach, and more respondents started to report their income as a continuous value (instead of using the brackets option).

Overall, the income distribution derived from the CES compares well with EU-SILC, but some differences remain.[34] Chart 3.5 also compares the CES unweighted imputed income distribution with EU-SILC weighted estimates. Considering the difference in the reference years for the two surveys, the CES-based income distribution is quite comparable to the EU-SILC-based income distribution, although

[34] To protect the anonymity of respondents only bracketed income data are being disseminated.

the latter is somewhat more skewed to the right, suggesting a higher degree of income inequality.

3.3 Household savings

3.3.1 Savings over time

Table 3.3
Indicators of household savings

(units, further description)

Description	April	July	October
… plan to save or put aside money in the next 12 months (percentages)	75.3	74.4	79.8
… can cover an unexpected payment equal to one month of household income (percentages)	70.1	71.4	72.1
Average amount (€) put aside or saved in the previous 3 months	1,465.5	1,805.5	1,506.8*
Average expected amount in total savings (€) needed for contingencies	9,409.7	11,366.6	10,883.3

Source: CES – The latest observation is for October 2020.
Notes: Data for October are categorical, the average amount saved by respondents was imputed using the random variable method. Qualitative questions (most recent version): (a) *Please think about your available financial resources, including access to credit, savings, loans from relatives or friends, etc. Suppose that you had to make an unexpected payment equal to one month of your household income. Would you have sufficient financial resources to pay for the entire amount?* (b) *Does your household plan to save money in the next 12 months?*
Quantitative questions (most recent version): (a) *Households save in various ways (by depositing money in a bank account, or by buying financial assets, property, or other assets) and for different reasons. How much money (if any) has your household saved in the last 3 months? (b) Households save for different reasons. One reason is to be ready for unexpected events, such as job loss, big repairs, or illness. Whether or not you currently put money aside, what do you think would be the total amount of savings that your household needs to deal with such unexpected events?*

The CES provides information on developments in savings, which seems in line with aggregate statistics. Developments in savings over time reveal information about the strength of the household sector's balance sheet. During the global financial crisis in 2008 and 2009, and in its aftermath, the household sector in some economies became a persistent net-borrower, leading to over-indebtedness and financial instability. Instead, the recession induced by the COVID-19 pandemic has led to a fall in consumption and an increase in the saving rate of households. During the COVID-19 crisis, the household sector accumulated large amounts of savings, which can also be inferred from the information presented in Table 3.3. Still, the share of households that can cover an unexpected payment did not rise dramatically. This reflects the fact that most additional savings have been accumulated by wealthier households, without necessarily implying a drop in the number of households with a vulnerable balance sheet (cf. Bounie et al., 2020).

The CES allows households' ability to absorb adverse shocks through their accumulated stock of savings to be measured. The CES not only provides information on the distribution of savings across households, it also enables direct measures of liquidity constraints or the degree of precautionary savings among households to be designed. Table 3.3 above suggests that households significantly increased the amount of savings that they consider necessary to deal with

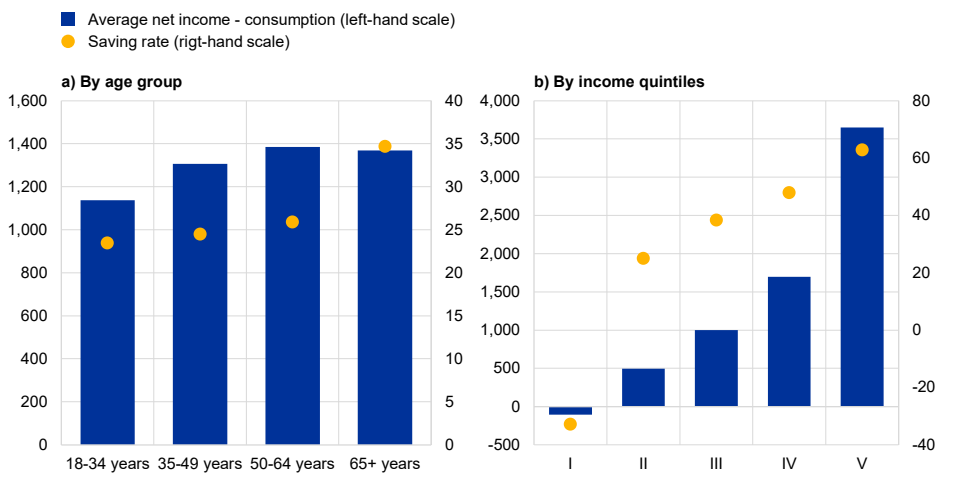
unexpected events.[35] As these concepts are not always straightforward to measure using regular data sources, well-designed survey questions can sometimes better capture the relevant theoretical concept (Kennickell and Lusardi, 2005).

3.3.2 Heterogeneity in savings behaviour

Savings differ considerably across the age and income distributions. However, the degree to which households can accumulate a financial buffer is far from uniformly distributed. Chart 3.6 presents the difference between monthly income reported in the background module and monthly consumption reported in the quarterly module in October 2020. Across the age distribution it confirms that savings increase over the life cycle (Gourinchas and Parker, 2002). Moreover, the saving *rate* rises even further after retirement. Across the income distribution the CES also confirms that households with higher income levels have a stronger tendency to save (cf. Dynan et al., 2004).

Chart 3.6

Average monthly savings and saving rate



Source: CES – The latest observation is for October 2020.
Notes: Weighted data. Pooled data for April, July and October 2020. Figures in the blue bars are obtained subtracting the total amount spent on 12 different consumption items from the imputed income. Yellow dots are obtained dividing the total amount obtained from the blue bars by the total income.
Expenses on consumption items are winsorised at the 2nd and 98th percentile.
Question asked: *During the last month how much did your household spend on goods and services on each of the individual components listed below?*

Improving our understanding of households' consumption decisions will also require more information on household wealth. While household-level savings flows are heterogeneous, household wealth (or accumulated saving) typically differs even more across households. Therefore, to develop a good understanding of consumption dynamics, it is also important to collect data on the size and composition of household (net) wealth, including debt. During its pilot phase, the CES has already started to collect some experimental information on households'

[35] Ercolani et al. (2021) show that for Italy desired precautionary saving is associated with higher job uncertainty, perceptions of a more protracted health crisis and greater worries about the risk of a new pandemic occurring in the coming years.

wealth, such as housing, mortgages, financial wealth holdings. These variables will be further developed in the future, so that CES data users can better understand how household wealth interacts with consumption.

At the same time, it should also be acknowledged that the online nature of the CES has its limits in terms of collecting detailed information on household balance sheets and the distribution of household wealth. First of all, surveying household wealth is complex and requires respondents to dedicate sufficient time to provide detailed information about the size and composition of their balance sheet. Moreover, unlike the HFCS, the CES does not oversample the wealthiest households, so that the right tail of the wealth distribution is likely to be understated. This illustrates how different household surveys complement each other to ensure that policymakers' understanding of the business cycle can be based on an information set which is as complete as possible.

Box 3
COVID-19, household spending and fiscal support

The coronavirus (COVID-19) pandemic has generated a complex economic shock that has affected households across the euro area very differently. In studying the impact of this shock on household consumption and its implications for the economic outlook, it is critical to understand and factor in these large divergences. Using data from the CES, this box documents substantial divergences in the pandemic-induced financial concerns of households across population subgroups and countries. Also, it shows how these concerns can account to a large extent for the drop in aggregate household spending in 2020. Reflecting this heterogeneity, the results imply that fiscal measures are most effective in stabilising aggregate consumption and supporting economic recovery if they target the most vulnerable groups. This finding underscores the importance of micro data for a real-time evaluation of macroeconomic policies.

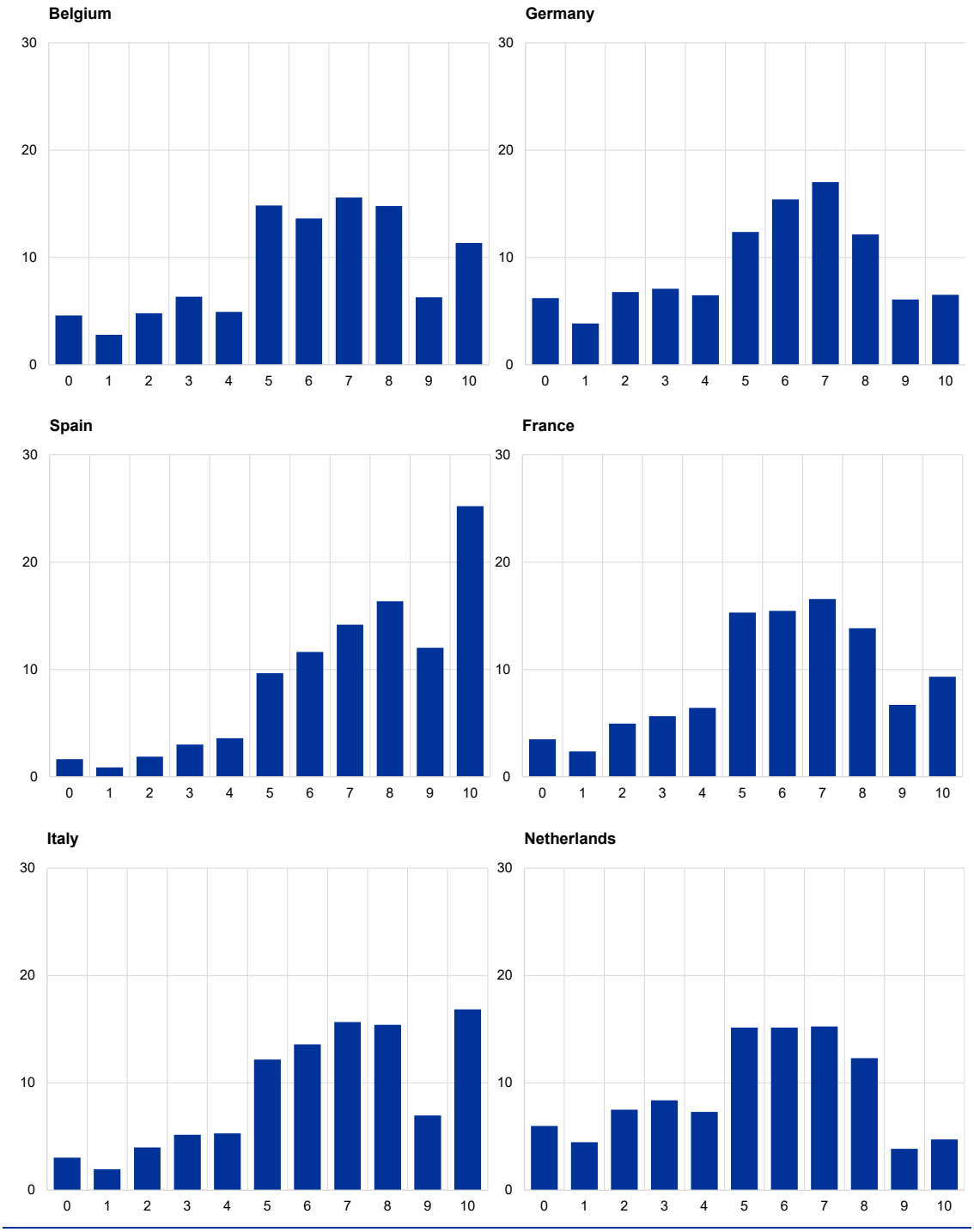
A new household-specific measure of the financial impact of the COVID-19 shock…

According to aggregate data for the euro area, household spending dropped by almost 8% in 2020 compared with 2019. The drop was strongest in Spain (-12.1%) and Italy (-10.7%). To help understand how consumption adjusted at the household level, Christelis et al. (2020) exploit household-specific information on the perceived severity of the financial consequences of the COVID-19 pandemic. One would expect pandemic-induced financial concerns to be negatively associated with consumption for several reasons. First, financial concerns depend on current income, access to liquidity and accumulated wealth, with less wealthy households being less equipped to buffer the adverse consequences of the COVID-19 outbreak. Second, financial concerns are associated with lower income expectations (e.g. owing to lockdown measures), depending on the occupation, sector of activity and remote working capability of household members. Third, financial concerns could reflect an increase in uncertainty about the future – because some households fear a higher probability of becoming unemployed or because there is uncertainty about the duration of the crisis and the economic consequences of further COVID-19 waves. Financial concerns could also reflect other household-specific factors ranging from, for example, household size to concerns about future increases in the tax burden.

Chart A

How concerned households are about their financial situation due to COVID-19

(y-axis: percentage of respondents; x-axis: level of concern with range 0 ("not concerned") to 10 ("extremely concerned"))



Source: CES – April, July and October 2020 data.
Notes: Pooled data across waves. The chart shows the percentage of responses per level of COVID-19 financial concern and by country.

The CES asks respondents the following question on the economic impact of the pandemic: "How concerned are you about the impact of the coronavirus (COVID-19) on the financial situation of your household?" (coded from 0 – "not concerned," to 10 – "extremely concerned"). Chart A plots the

distribution of household financial concerns due to COVID-19 within the six CES countries in the form of a histogram. The share of respondents concerned about their financial situation is higher in those countries that during the first wave of the pandemic experienced the highest number of COVID-19 cases and deaths, and stricter lockdown policies limiting citizens' mobility and engagement in economic activity. In Italy and Spain 36% and 52% of respondents, respectively, express high concerns (7 or above) about the financial consequences of COVID-19. Indeed, these two countries stand out with a significant fraction of households reporting the highest possible level of concern (10). On the other hand, in Germany and the Netherlands the fractions expressing relatively high concerns (above 7) are 25% and 20%, respectively. The survey includes also separate questions on the health consequences of COVID-19 for the respondent and his or her household. Unlike financial concerns, health-related concerns are considerably higher among the older (65+) and the middle-aged (36-64) households compared to the young. However, formal econometric analysis showed that the effects of the COVID-19 outbreak on consumption mainly operate through households' perceptions about the financial repercussions of the shock and not via their concerns about the effects of the pandemic on their own health per se.

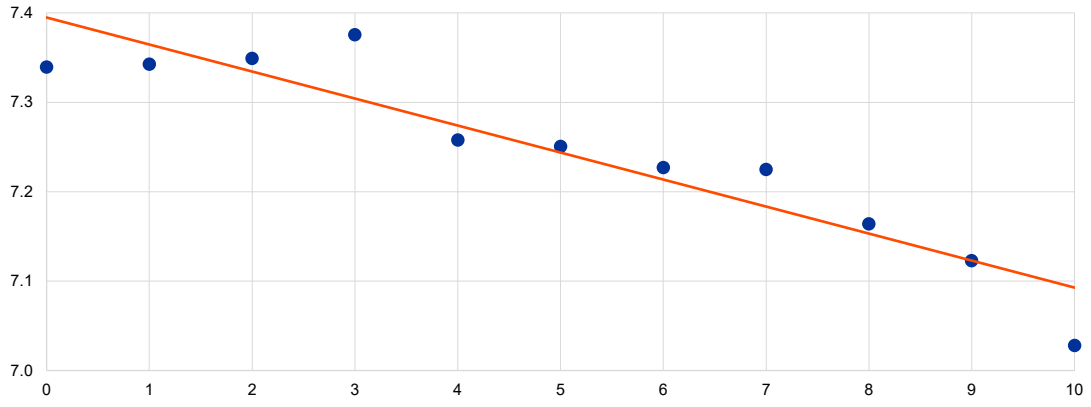
…uncovers a powerful transmission channel to consumption…

Chart B plots binned values of the (logarithm of) monthly non-durable consumption against the values of the measure of COVID-19 financial concerns (0-10) discussed above. Comparing those who are least concerned about the financial consequences of COVID-19 (values of 2 and below) with those that are very concerned (9 or 10) implies a reduction in consumption of about 25%. Of course, this relation does not consider other variables that affect consumption. Econometric estimates, controlling for other variables, indicate that raising concern from 0 (the least concern) to 6 (the median concern) reduces consumption by 8.2%. On the other hand, concern about COVID-19's impact on one's own health as well as the health of other household members has no statistically significant independent impact on consumption. The results suggest that financial concerns are a much stronger independent driver of spending behaviour than health-related concerns per se, the effects of which may instead be transmitted via the impact on the household's expected financial conditions (e.g. if job loss were to arise as a result of health problems). Moreover, as the estimation controls for current income, socioeconomic variables, unobserved household traits (e.g. risk attitudes) and aggregate effects (e.g. country macroeconomic conditions), precautionary saving is a likely explanation for the negative association between COVID-19 financial concerns and consumption.

Chart B

Households' concern about their financial situation due to COVID-19 and the effect of this concern on consumption

(y-axis: log consumption; x-axis: level of concern with range 0 ("not concerned") to 10 ("extremely concerned"))



Source: CES –- April, July and October 2020 data.
Note. Weighted data pooled across waves. The figure shows a scatterplot and a fitted line of the natural logarithm of monthly non-durable consumption against the COVID-19 financial concern. Data are binned.

…but targeted fiscal transfers have provided effective support.

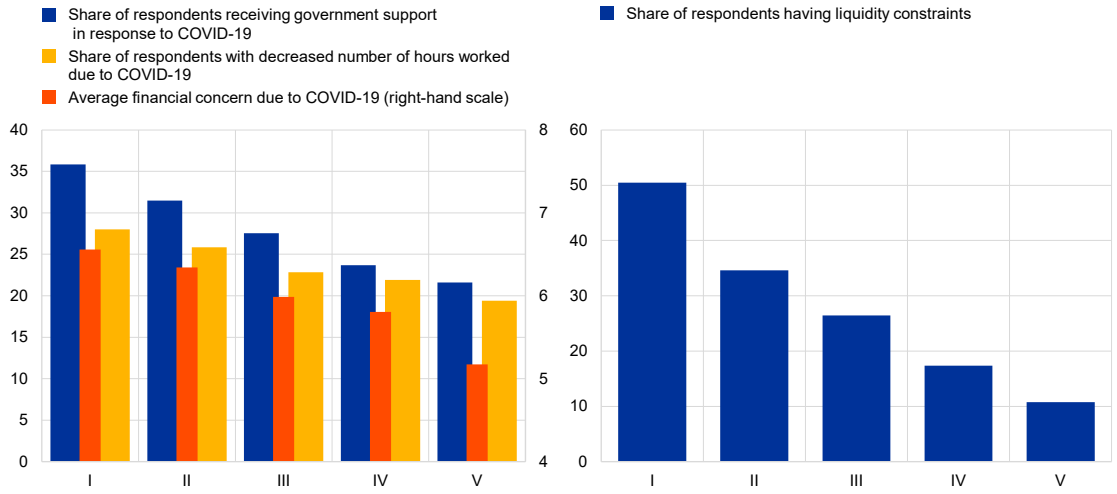
Despite the pandemic-related decline in hours worked and earnings, disposable income in the household sector has been largely protected by countervailing fiscal measures.[36] In terms of composition, households in the lower part of the income distribution have been most affected by the pandemic (Chart C). However, the CES suggests that a higher share of these households is receiving pandemic-related government support. This reflects mainly the targeted nature of many of these government schemes, such as the short-term work and wage subsidy schemes in many euro area countries. Given that, as is shown in Chart C, lower-income households also face greater liquidity constraints and therefore exhibit higher marginal propensities to consume, fiscal support for this group is especially important from a macroeconomic perspective. As illustrated by Bayer et al. (2020), fiscal transfers targeted at those households whose income is most at risk have a much higher multiplier effect than untargeted transfers. This underscores the effectiveness of the targeted government schemes during the COVID-19 crisis in supporting private consumption and in preserving the economy from an even bigger contraction.

[36] See Lane, P. (2020).

Chart C

Government support to households by income quintile

(left-hand panel: share of respondents and average financial concern; right-hand panel: share of respondents)



Source: CES, – June and November 2020 data.
Notes: Pooled and weighted data.
Questions asked: (a) *In response to the coronavirus (COVID-19) outbreak, governments are introducing policies to support households, workers and businesses. Please indicate whether your household has received such support in any of the following forms.*
(b) *In the last month, have you changed your behaviour in any of the following areas because of concerns about the coronavirus (COVID-19)? – The number of hours you work per week.*
(c) *How concerned are you about the impact of the coronavirus (COVID-19) on each of the following? – The financial situation of your household.*
(d) *Please think about your available financial resources, including access to credit, savings, loans from relatives or friends, etc. Suppose that you had to make an unexpected payment equal to one month of your household income. Would you have sufficient financial resources to pay for the entire amount?*

4 Inflation

Inflation expectations of economic agents are central to monetary policy analysis. A growing number of research studies use large micro survey data to investigate the process underpinning consumers' inflation expectations. This research points to three main findings. First, there are some significant deviations of consumer expectations from full-information rational expectations, as, for example, many consumers update expectations infrequently or are subject to cognitive and financial constraints.[37] Second, there is considerable heterogeneity in inflation expectations across various population subgroups.[38] Consumers generally perceive inflation to be higher than official statistics and their inflation expectations appear to be strongly influenced by their own subjective experience of prices, including their individual shopping baskets and experiences of hyperinflation or low inflation during their life cycle.[39] Third, individual inflation expectations feed into important household borrowing, investment and spending decisions. For instance, studies find that households with higher inflation expectations are less likely to invest in long-term bonds, more likely to borrow through fixed-rate mortgages and more willing to spend compared to their counterparts with low inflation expectations, especially when nominal interest rates are at or close to zero.[40]

The CES collects, at a monthly frequency, data on consumer inflation expectations across the six largest euro area economies. The survey design ensures the collection of harmonised quantitative and qualitative information in a timely manner and facilitates direct cross-country comparisons. Combined with detailed information on household and individual-level characteristics, the survey enables researchers and policymakers to shed light on both the inflation expectations formation process and the mechanism linking such expectations with household behaviour. In line with this, the panel structure of the CES allows the formation of consumer inflation expectations, their revision over time and the extent to which they feed into important household decisions, to be traced.

In particular, the CES asks a series of questions measuring consumer perceptions about past inflation as well as expectations about future inflation 12 months ahead and between two and three years ahead (that is aligned with the ECB's projection horizon) in order to gain insights on consumers short and medium-term inflation expectations, respectively. Quantitative measures of inflation expectations provide point forecasts, nonetheless they do not convey any information on underlying individual uncertainty about inflation. An important feature of the CES is that it utilises a probabilistic-type question to elicit individual uncertainty about inflation over the next 12 months. The question asks respondents to assign probabilities to future inflation outcomes by allocating 100 points over different possible ranges of inflation

37 Coibion and Gorodnichenko (2015).

38 Arioli et al. (2017) provide evidence for the euro area.

39 D'Acunto et al. (2019).

40 Malmendier and Nagel (2016), D'Acunto et al. (2018); Duca-Radu et al. (2020), and Andrade et al. (2020).

(details about this cognitive demanding question are provided in a separate section below). Table 4.1 shows various summary statistics from the qualitative and quantitative measures of inflation perceptions and expectations as well as the probabilistic measure of inflation expectations and inflation uncertainty.[41]

A common feature underlying these questions is that they are asked with reference to "changes in prices in general" instead of using the term "inflation" (or "deflation") that some other surveys refer explicitly to. Using the latter term would require some familiarity of respondents with the concepts of inflation or deflation and may prompt (at least some of them) to respond based on their knowledge (or lack thereof) of the underlying statistical measure. For example, when asked how they conceptualise the term "inflation", approximately 30% of respondents failed to recognise that it represents an increase in the general level of prices of goods and services.

Table 4.1

Main measures of inflation perceptions and expectations

Description	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
Qualitative (share of HHs greater than zero)									
Inflation perceptions	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.6
Inflation expectations – next 12 months	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Inflation expectations – 3 years ahead	0.7	0.7	0.7	0.7	0.7	0.7	0.6	0.7	0.7
Quantitative (median)									
Inflation perceptions	2	2.5	2.5	2	2	2	2	2	1.5
Inflation expectations – next 12 months	2.8	2.5	2	2	2	2	2	2	2
Inflation expectations – 3 years ahead	2.5	2	2	2	2	2	2	2	2
Probabilistic (median)									
Inflation expectations – next 12 months	3.0	3.2	3.0	3.0	3.0	2.6	2.6	2.5	2.5
Inflation uncertainty	1.3	1.2	1.1	0.9	1.1	0.8	0.8	0.8	0.8

Source: CES. – The latest observation is for December 2020.
Notes: Units refer to % for all but "Inflation uncertainty" which measures standard deviations from the probabilistic bands. Measures are rounded to the first digit.
Question(s) asked: qualitative, quantitative and probabilistic questions on inflation perceptions (past 12 months) and inflation expectations (12 months ahead and three years ahead). See variables C1010 to C1220 in the Appendix for the exact wording.

Inflation expectations from the CES can be compared with the EU Consumer Survey, which is part of the European Commission's Business and Consumer Surveys (BCS).[42] While a direct comparison between the two surveys is not straightforward due to differences in survey design, it is instructive to contrast the features of the two surveys as the EU Consumer Survey also collects information on consumer inflation expectations in the euro area. The CES asks respondents what they think will happen to prices in general 12 months ahead, providing the following options: "prices will increase a lot", "prices will decrease a lot", "prices will increase a little", "prices will decrease a little" and "prices will remain exactly the same (that is

41 Rondinelli and Zizza (2020) field a similar probabilistic-type question in the Banca d'Italia's Survey on Household Income and Wealth and show that it helps in eliciting household inflation expectations.

42 For a recent study using inflation expectations from the EU Consumer Survey, see Duca et al. (2020).

0% change)". By contrast, the EU Consumer Survey asks consumers how they expect consumer prices to develop in the next 12 months (in comparison to the past 12 months) by providing the following five options: (prices will…) "++ increase more rapidly"; "+ increase at the same rate"; "= increase at a slower rate"; "- stay about the same"; and "--fall". The EU Consumer Survey provides an additional option for price increases while it uses only one option for price decreases. This lack of symmetry may bias responses towards price increases. In order to encourage precision in responses, the CES offers the option "prices will remain *exactly* the same (that is 0% change)" and instructions alert respondents that "we are interested in even very small changes". The counterpart response option of the EU Consumer Survey refers to "prices will stay *about* the same" and a 0% inflation rate is automatically filled in for those who choose this option. This approach increases heaping at zero, influencing summary statistics on inflation expectations.

Table 4.2 shows some notable differences in survey responses about short-term inflation expectations per country between the CES and the EU Consumer Survey. A lower fraction of respondents in the CES reports zero inflation expectations in all countries. Instead, in the EU Consumer Survey, excess heaping is evident in Italy which brings median inflation expectations to 0%. Also, the CES collects more precise information about inflation expectations as a higher fraction of respondents makes use of decimals in comparison to the EU Consumer Survey in all countries (except Belgium). In addition, fewer CES respondents use multiples of five than respondents in the EU Consumer Survey for all countries, with the exception of Italy. Moreover, for all six euro area countries, a higher fraction of inflation expectations in the CES lie within the range [-10%,10%] than in the EU Consumer Survey.

Table 4.2

Cross-country comparison of CES and EU Consumer Survey: inflation expectations over the next 12 months

(percentages)

	CES						EU Consumer Survey					
Country	BE	DE	ES	FR	IT	NL	BE	DE	ES	FR	IT	NL
Share of 0s	10.2	27.2	19.2	25.2	14.8	6.4	44	23	48	43	64	27
Decimal use	32.8	21.0	21.8	20.5	17.0	38.3	48	3	0	4	0	0
Multiples of five	21.6	16.9	25.5	22.5	39.4	17.2	5	38	34	31	28	35
In range [-10,10]	92.0	93.6	87.0	89.8	81.1	94.6	82	84	85	89	88	89

Sources: CES and EU Consumer Survey – The latest observation is for September 2020.
Notes: CES data are unweighted and pooled across waves. The EU Consumer Survey allows for a "don't know" option in the preceding qualitative question as opposed to the CES. The share of 0s in the CES represents the fraction of those reporting that "prices will remain *exactly* the same (that is 0% change)" in the qualitative question. Remaining statistics are calculated from the open-ended forecast question asking: "*How much higher (lower) do you think prices in general will be 12 months from now in the country you currently live in? Please give your best guess of the change in percentage terms. You can provide a number up to one decimal place*".

There is also a notable divergence in the share of respondents that report inflation perceptions and expectations within specific ranges for the CES and EU Consumer Survey (Table 4.3). The share of respondents that report inflation perceptions and expectations that are within the range of inflation values that have prevailed in recent years is much higher in the CES than in the EU Consumer Survey. In particular, the share of inflation perceptions and expectations that are aligned with the historical

averages of inflation rates is 26% and 24%, respectively in the CES, whereas in the EU Consumer Survey it is 8% and 6%, respectively. Also, the share of respondents with zero inflation perceptions and expectations in the CES is lower than that of the EU Consumer Survey. Finally, the share of respondents with negative inflation perceptions and expectations is higher than that of the EU Consumer Survey. For example, the share of respondents that report a decrease in their inflation expectations of less than 2% in the CES is 4%, while in the EU Consumer Survey it is only 0.5%.

Table 4.3

Comparison of inflation beliefs between the CES and the EU Consumer Survey

(percentages)

	CES								
Range	**[-100, -10)**	**[-10, -5)**	**[-5, -2)**	**[-2, 0)**	**0**	**(0, 2]**	**(2, 5]**	**(5, 10]**	**(10, 100]**
Inflation perceptions	0.7	0.9	2.0	3.2	17.0	26.0	26.2	13.4	10.6
Inflation expectations 12 months ahead	0.8	1.3	2.9	4.0	18.8	23.6	25.6	12.7	10.3
	EU Consumer Survey								
Inflation perceptions	0.3	0.3	0.6	0.4	30.6	9.1	22.9	16.9	18.9
Inflation expectations 12 months ahead	0.8	0.9	1.4	0.7	42.4	7.6	19.0	13.7	13.5

Sources: CES and EU Consumer Survey – The latest observation is for September 2020.
Notes: CES data are unweighted and pooled across waves. EU Consumer data refer to the six euro area countries, i.e. Belgium, Germany, Spain, France, Italy and the Netherlands. For both surveys, an answer of "no change" in preceding qualitative question leads to an automatic assignment of 0% change in the open-ended/quantitative question. The EU Consumer Survey allows for a "don't know" option in the qualitative question as opposed to the CES.
Question asked (CES): Open-ended (quantitative) questions on inflation perceptions (past 12 months) and inflation expectations (12 months ahead). See variables C1020 and C1120 in the Appendix for the exact wording.

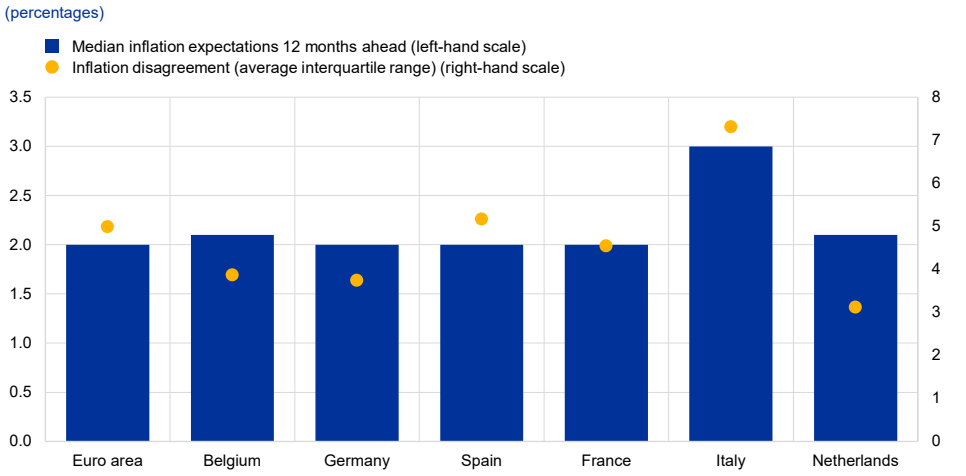
Beyond the differences discussed above, the CES has three distinct features that enable a more thorough analysis than the EU Consumer Survey. First, the EU Consumer Survey consists of repeated cross-sections. This sets limits in examining dynamic relationships or taking into account household heterogeneity over time. Instead, the CES features a panel structure that ensures monitoring the same respondents over time, thus reducing sampling volatility and allows modelling household unobserved heterogeneity. Second, the CES elicits consumers' subjective probability distribution of future inflation outcomes allowing an individual-specific measure of inflation uncertainty to be deduced. Third, the CES collects information on various aspects of household behaviour (e.g. on consumption, saving and labour market outcomes) thus enabling the links between behaviour and inflation expectations or uncertainty to be examined.

4.1 Inflation perceptions and expectations

According to the CES data from April to December 2020, median inflation expectations 12 months ahead are well anchored across countries in the euro area (Chart 4.1). In particular, median inflation expectations in Belgium, Germany, Spain and France are 2%, while in the Netherlands they are slightly higher at 2.1%. Italy exhibits the highest median inflation expectations (3%) over the next 12 months. The interquartile range (i.e. the difference between the 75th and 25th percentile of the distribution of inflation expectations) represents a measure of disagreement among consumers about future inflation. This reveals that there is a relatively high degree of disagreement about inflation expectations in Spain and Italy, the two countries in the sample most affected by the pandemic, at least during the first COVID-19 wave.

Chart 4.1

Median inflation expectations and uncertainty over the next 12 months

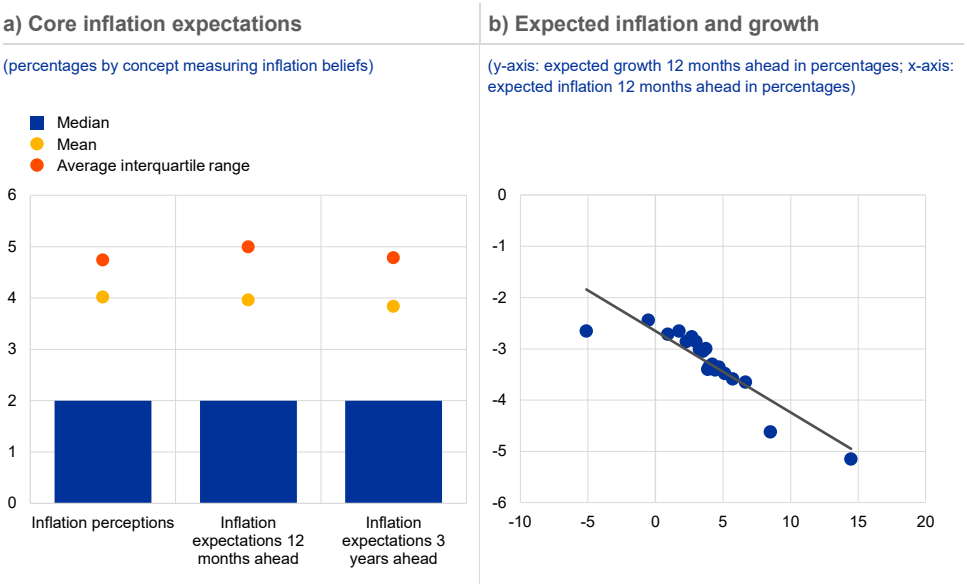


Source: CES – The latest observation is for December 2020.
Notes: Pooled data across waves. Using weighted data. Disagreement and inflation expectations are obtained from the open-ended question about individual expectation of changes in prices in general over the next 12 months.
Question asked: *How much higher (lower) do you think prices in general will be 12 months from now in the country you currently live in? Please give your best guess of the change in percentage terms. You can provide a number up to one decimal place.*

Median inflation expectations for the short and medium-term for the entire sample over the same period stand at 2%. The distribution of inflation perceptions and inflation expectations are skewed to the right as the means, which are sensitive to high values, are higher than the corresponding medians. Chart 4.2a also demonstrates that the disagreement about short-term inflation expectations among respondents is on average somewhat higher than the disagreement about inflation perceptions and medium-term inflation expectations. Stanislawska and Paloviita (2021), using the CES data from April to September 2020, show that medium-term inflation expectations are sensitive to short-term inflation expectations and inflation perceptions. However, the responsiveness of medium-term inflation expectations to changes in short-term inflation expectations is higher than the responsiveness to changes in inflation perceptions.

Chart 4.2

Inflation perceptions, inflation expectations and growth



Source: CES – The latest observation is from December 2020.
Notes: Pooled data across waves. a) Using weighted data. Statistics computed from open-end questions on inflation with different time horizons (12 months before interview date and 12 months / 3 years ahead of interview date). b) Both series on y-axis are winsorised at the 2nd and 98th percentile. Pooled and weighted April to December data. The linear fit takes into account wave and individual-specific fixed effects.
Question(s) asked: (a) Open-ended (quantitative) questions on inflation perceptions (past 12 months) and inflation expectations (12 months ahead and three years ahead). See variables C1020, C1120 and C1220 in the Appendix for the exact wording.
(b) Open-ended (quantitative) questions on inflation expectations and economic growth in home country (12 months ahead). See variables C1020 and C4020 in the Appendix for the exact wording.

The CES provides information on various individual expectations, which allows certain intuitive associations to be explored. Chart 4.2b illustrates a clear negative association between consumers' expectations of economic growth and inflation. Such evidence casts considerable doubt on the representative agent model of textbook rational expectations theory. This association appears consistent with a "supply-side narrative", where higher inflation expectations are mainly associated with a pessimistic economic outlook and lower expectations about economic growth.[43] In line with the link with overall economic pessimism, recent research based on experimental evidence for Dutch households shows that consumers who revise their inflation expectations upwards tend to reduce their spending on durables at least in the short term, as households tend to interpret an increase in expected inflation as signalling a reduction in their future income.[44]

These insights gained from the CES have been helpful in assessing not only agents' expectations formation but also its implications for the efficacy of make-up strategies.[45] For example, an association of higher inflation expectations with bad economic news could hamper the stabilisation benefits from make-up strategies that

43 This relationship is also corroborated in survey data from non-euro area countries and it was highlighted in a presentation at the 2020 Jackson Hole symposium (Navigating the Decade Ahead: Implications for Monetary Policy). The accompanying paper by Candia, Coibion and Gorodnichenko (2020) prominently cites the CES –highlighting its cross-country comparability – and reproduces similar graphical evidence for each of the six euro area countries in the sample.

44 See Coibion et al. (2019), and Rondinelli and Zizza (2020).

45 Going forward, the CES will help understanding about how consumer inflation expectations can help in stabilising the economy – including the design of optimal communication strategies.

attempt to raise inflation expectations, especially during periods where interest rates are at the lower bound.[46]

4.2 Heterogeneity in inflation perceptions and expectations

The wealth of information collected by the CES can be used to explore the heterogeneity in consumer inflation expectations across specific demographic and socioeconomic groups (Table 4.4). The results are broadly aligned with the patterns estimated by a number of recent studies that use household survey data from various sources. Short and medium-term inflation expectations are higher for female than male consumers. This is in line with the findings in Bryan and Venkatu (2001), Bruine de Bruin et al. (2010) and D'Acunto et al. (2021), among others, who argue that females typically take care of most shopping in a household and thus are more frequently exposed to changes in the price of goods. Older consumers have higher short and medium-term inflation expectations, which is consistent with the findings in Bruine de Bruin et al. (2011) and Diamond et al. (2020), among others.[47] In addition, consumers with larger families tend to hold higher short and medium-term inflation expectations. Large households tend to spend more and therefore they are more likely to be exposed to a higher level of inflation. For example, Christelis et al. (2020c) estimate a positive association between household size and non-durable consumption during the COVID-19 pandemic.

Consumers with low financial literacy have higher inflation expectations both over the short and medium-term. This is in line with previous studies, such as Lusardi (2008), Bruine de Bruin et al. (2010) and Bruine de Bruin et al. (2011), which show that those consumers with a lower ability to process financial statistics and information, tend to overestimate inflation, as they are less informed about short and longer-term price trends. Consumers with low levels of education and income, temporary employment arrangements and liquidity constraints tend to have higher inflation expectations. This is in line with the fact that these socioeconomic groups are more sensitive to transient price shocks and are less informed about price changes embedded in the inflation rate (see, Bruine de Bruin et al., 2010 and Bruine de Bruin et al., 2011, among others). Finally, on average, a lower level of trust in the ECB is associated with higher short and medium-term inflation expectations, consistent with Christelis et al. (2020b). The latter study argues that the negative relationship between trust in the ECB and inflation expectations could reflect beliefs in the ECB's ability and commitment to deal with above target inflation rates. Van der Cruijsen and Samarina (2021), using CES data from April 2020 to March 2021, estimate a positive association between trust in the ECB and the probability that consumer inflation expectations three years ahead are well anchored. This suggests that higher public trust in the ECB contributes to consumer inflation expectations that are closer to the ECB's medium-term definition of price stability. Van der Cruijsen and Samarina

46 See, for example, Castelleti et al. (2021) and Gautier et al. (2020), who have studied household inflation expectations during the COVID-19 outbreak.

47 This could be because the elderly may experience a higher rate of inflation due to their health care expenditure; see, Hobijn and Lagakos (2003), and McGranahan and Paulson (2006).

(2021) also find that, compared to trust in the ECB, financial knowledge has a much stronger positive effect on the likelihood that inflation expectations are well anchored.

Table 4.4

Heterogeneity in inflation perceptions, expectations and uncertainty

	Inflation perceptions			Inflation expectations 12 months ahead			Inflation expectations 3 years ahead			Inflation uncertainty		
	Mean	Median	IQR	Mean	Median	IQR	Mean	Median	IQR	Mean	Median	IQR
Gender												
Men	3.2	2.0	4.2	3.2	2.0	4.4	3.3	2.0	4.2	1.6	1.1	1.8
Women	4.4	2.0	5.5	4.4	2.0	5.7	4.0	2.0	5.2	1.7	0.9	2.1
Age												
18-34	3.5	2.0	4.4	3.4	1.5	4.5	3.0	1.1	3.9	1.9	1.2	2.3
35-49	4.1	2.0	5.2	4.0	2.0	5.3	3.7	2.0	4.7	1.7	1.1	2.1
50-64	4.3	2.0	4.7	4.2	2.3	5.1	4.0	2.0	4.8	1.6	1.0	1.8
65+	3.6	2.0	4.5	3.7	2.0	4.5	3.9	2.0	4.9	1.4	0.8	1.4
Education												
Primary	4.4	2.0	5.6	4.2	2.0	5.5	4.1	2.0	5.4	1.7	0.8	2.1
Secondary	4.3	2.0	5.1	4.2	2.0	5.6	4.0	2.0	5.2	1.7	1.1	2.1
Tertiary	3.4	2.0	4.4	3.5	2.0	4.6	3.4	2.0	4.4	1.6	1.1	1.8
Household size												
1	3.5	2.0	4.7	3.6	2.0	5.0	3.5	2.0	4.7	1.5	0.8	1.7
2	3.6	2.0	4.5	3.7	2.0	4.6	3.5	2.0	4.5	1.5	0.8	1.7
3	4.2	2.0	5.2	3.9	2.0	5.1	3.8	2.0	4.8	1.8	1.2	2.2
4	4.1	2.0	5.0	4.0	2.0	5.4	3.7	2.0	4.7	1.8	1.2	2.2
5 or more	4.8	2.0	6.1	4.5	2.0	5.8	4.4	2.0	5.8	2.0	1.4	2.4
Employment type												
Permanent	3.5	2.0	4.3	3.5	2.0	4.6	3.3	2.0	4.3	1.6	1.1	1.9
Temporary	3.9	2.0	5.0	4.2	2.0	5.4	4.2	2.0	5.3	1.9	1.3	2.4
Financial literacy												
Below median	4.7	2.0	6.7	4.5	2.0	6.3	4.2	2.0	5.7	1.8	0.8	2.4
Median or above	3.4	2.0	4.2	3.4	2.0	4.5	3.4	2.0	4.2	1.5	1.1	1.8
Trust in the ECB												
Rather no trust	5.1	2.8	6.1	5.1	3.0	5.9	5.0	3.0	6.1	1.8	1.2	2.2
Neither	3.9	2.0	4.8	3.8	2.0	5.1	3.7	2.0	5.0	1.7	1.1	2.0
Rather trust	3.2	2.0	4.3	3.1	2.0	4.2	2.9	1.8	3.9	1.5	0.8	1.8
Income quartiles												
1	4.7	2.1	6.1	4.6	2.0	6.3	4.4	2.0	5.6	1.8	1.1	2.4
2	4.2	2.0	5.0	4.0	2.0	5.2	3.7	2.0	4.8	1.7	1.0	2.1
3	3.5	2.0	4.5	3.4	2.0	4.6	3.3	2.0	4.4	1.5	0.8	1.8
4	3.1	2.0	4.0	3.2	2.0	4.2	3.2	2.0	4.0	1.5	1.1	1.7
Liquidity constrained												
Yes	5.2	2.5	7.4	4.9	2.5	6.6	4.8	2.0	6.3	2.0	1.2	2.6
No	3.3	2.0	4.4	3.4	2.0	4.6	3.2	2.0	4.3	1.5	0.9	1.8

Source: CES – The latest observation is for December 2020.
Notes: Pooled data across waves. Averages using weighted data. Data has been winsorised at the 2nd and 98th percentile. The interquartile range is averaged. Medians are taken over the full sample. Inflation uncertainty is derived as the standard deviation from a probabilistic question asking respondents to distribute 100 points in pre-defined intervals.
Question(s) asked: open-ended (quantitative) questions on inflation perceptions (past 12 months) and inflation expectations (12 months ahead and three years ahead), as well as a probabilistic question on inflation expectations (12 months ahead). See variables C1020, C1120, C1220 and C1150 in the Appendix for the exact wording.

4.3 Subjective probabilities and inflation uncertainty

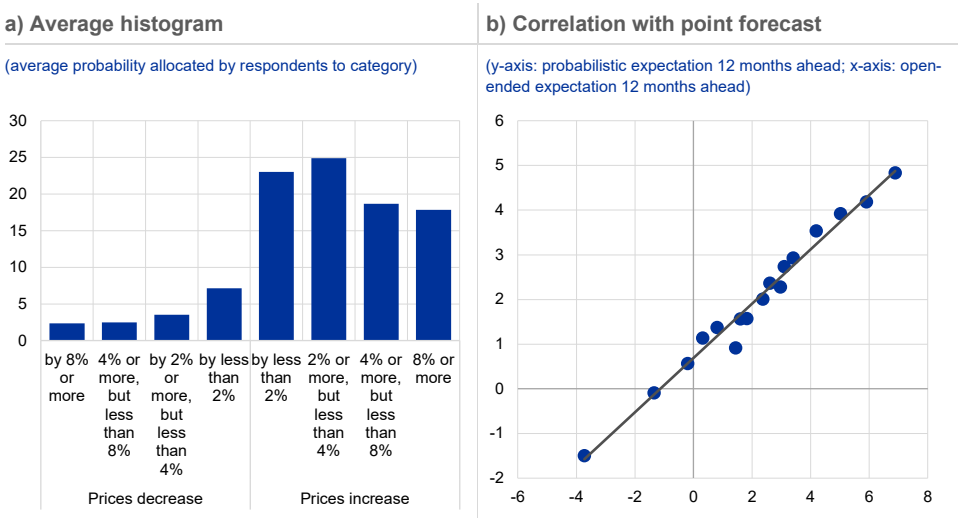
The probabilistic question on inflation expectations in the CES enables the eliciting of a subjective probability distribution of inflation expectations (over the next 12 months) that is consumer-specific. In particular, respondents are asked to allocate 100 points across eight intervals of changes in prices (bins) to indicate the likelihood that future inflation will lie in each of them (see Chart 4.3a). Based on this, first and second moments out of the probability density function can be deduced for each respondent.

Chart 4.3a displays the distribution of the average percentage of points allocated by respondents across the eight pre-defined bins. About one-quarter of points are allocated in the bin that represents an increase in prices by 2% or more, but less than 4%. 23% of points are allocated in the bin that represents an increase in prices by less than 2%, 19% of points in the bin referring to increase in prices by 4% or more, but less than 8% and 18% of points in the bin referring to increase in prices by more than 8%.

Using the implied mean out of these density forecasts, the association with the point forecasts that consumers reported in an earlier question can be examined. Chart 4.3b illustrates a strong positive association between the two measures suggesting that there is consistency in the answers that respondents provide across the two questions.

Chart 4.3

Probabilistic inflation expectations for the next 12 months



Source: CES – The latest observation is for December 2020.
Notes: Pooled data across waves. Using weighted data to compute the shares.
Questions asked: Individual-level data on inflation expectation for prices in general over the next 12 months is derived from a probabilistic question asking respondents to distribute 100 points in pre-defined intervals. Point forecasts of 12 months ahead inflation expectations are obtained from asking respondents about the numerical forecast in a range from -100 to 100% allowing also for the use of decimals. See variables C1120 and C1150 in the Appendix for the exact wording.
For panel b) the range has been restricted to -8 to 8% to account for the unboundedness of the lowest and highest bins. Results are comparable if extreme observations are included. Only respondents that allocate 100% in total (more than 95% of respondents) are included.

The qualitative features of the probabilistic question on inflation expectations are shown in Table 4.5. Overall, respondents appear to provide consistent answers to this cognitively demanding question. More than 90% of respondents provide subjective probabilities for their inflation expectations with less than 3% allocating points in non-adjacent bins (which does not allow a continuous distribution to be elicited). About 10% of respondents report a subjective probability distribution of expected inflation outcomes that does not contain the open-ended forecast over the same time horizon. This fraction reduces to about 6% after accounting for respondents expecting exactly zero inflation. Almost half of respondents use at least three bins, suggesting that there is some uncertainty about future inflation among a significant number of households. Eliciting this uncertainty and potential heterogeneity seems pivotal, therefore, to a survey of consumer expectations.

Table 4.5

Properties of probabilistic bin question on inflation expectations

(percentage of respondents)

Non-response	Non-adjacent bins	Using extreme bins	Using extreme bins only	Point forecast not in support of individual-level histogram	Number of bins used		
					1	2	3+
9.3	2.8	47.1	6.9	9.1	25.8	15.5	47.6

Source: CES – The latest observation is for December 2020.
Note: Pooled data across waves.
Question asked: Probabilistic question on inflation expectations (12 months ahead) asking respondents to distribute 100 points in pre-defined intervals. See variable C1150 in the Appendix for the exact wording.

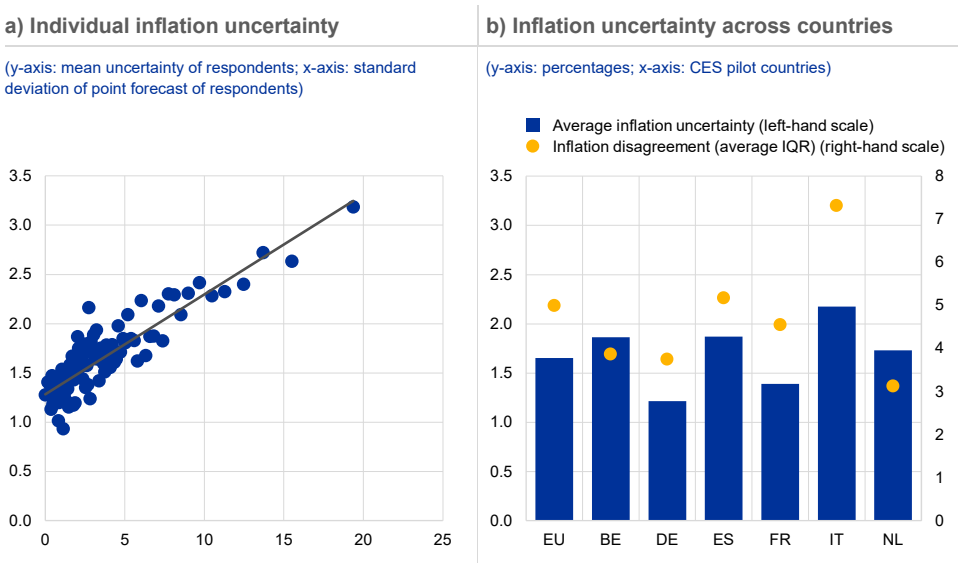
Drawing on information collected from the probabilistic question described above, uncertainty in inflation expectations can be estimated by calculating the standard

deviation (or variance) of every respondent's probability distribution. Chart 4.4a shows a positive association over the sample period, between the mean respondent-specific inflation uncertainty and the variability in individual inflation expectations 12 months ahead. This suggests that consumers with a high degree of uncertainty in their density forecasts also display a high degree of volatility in their point forecasts reported over time.

Cross-country analysis shows that Italy exhibits the highest inflation uncertainty derived from the probabilistic measure of inflation expectations and the highest average interquartile range of point forecasts (Chart 4.4b). Spain also has higher uncertainty about density forecasts and a higher average interquartile range of point forecasts than the four remaining countries. Based on the probabilistic measure of inflation expectations, Germany has the lowest inflation uncertainty compared to the remaining countries.

Table 4.4 above shows that there is also significant heterogeneity in inflation uncertainty across specific demographic and socioeconomic groups. Consumers who are less educated, liquidity constrained and those with a temporary job and low level of income display a higher degree of uncertainty about their inflation expectations. These groups are more likely to be sensitive to price changes and experience high background risks (i.e. risks that households cannot be fully insured against, such as labour income risk), which in turn could cause more uncertainty about what levels of inflation to expect and thus lead to more volatile inflation expectations (for similar evidence, see Bruine de Bruin et al., 2010). Consumers with a low level of financial literacy have higher uncertainty in their inflation expectations. It may be that consumers with low financial literacy fail to accurately report their inflation expectations, inducing variability in their inflation expectations (Bruine de Bruin et al., 2011). Table 4.4 also documents that inflation uncertainty decreases with the level of trust in the ECB, highlighting the benefits of public trust in reducing inflation uncertainty (see also Christelis et al., 2020b). However, unlike inflation expectations it appears that inflation uncertainty decreases for older consumers. Itzhak et al. (2018) document a non-linear relationship between age and inflation uncertainty, as young and old consumers tend to have higher inflation uncertainty than their middle-aged counterparts.

Chart 4.4
Inflation uncertainty



Source: CES – The latest observation is for December 2020.
Notes: Pooled data across waves. a) Winsorised at 2nd and 98th percentile. b) Using weighted, April to December data. Disagreement is obtained from the open-ended question about individual expectation of changes in prices in general over the next 12 months. Inflation uncertainty is derived as the standard deviation from a probabilistic question asking respondents to distribute 100 points in pre-defined intervals.
Questions asked: Open-ended and probabilistic questions on inflation expectations (12 months ahead). See variables C1120 and C1150 in the Appendix for the exact wording.

Box 4
Listening to the public – knowledge and information sources about the ECB

Central bank communication has become a key tool for monetary policy. However, whether and to what extent the general public is aware of what central banks aim for is still an open question. Despite recent studies, such as Van der Cruijsen et al. (2015), and Mellina and Schmidt (2018), we still know little about the general public's knowledge of the ECB's monetary policy, its objectives and how information on the ECB reaches the public. The CES enhances our understanding of the general public's knowledge about the ECB's objectives and communication channels.

Results from the CES suggest considerable room for improving the public's understanding of the ECB's objectives and that better communication, along with clarity about the central bank's policy goals and how it plans to achieve them, could improve the effectiveness of monetary policy.

Table A
Public awareness of the ECB

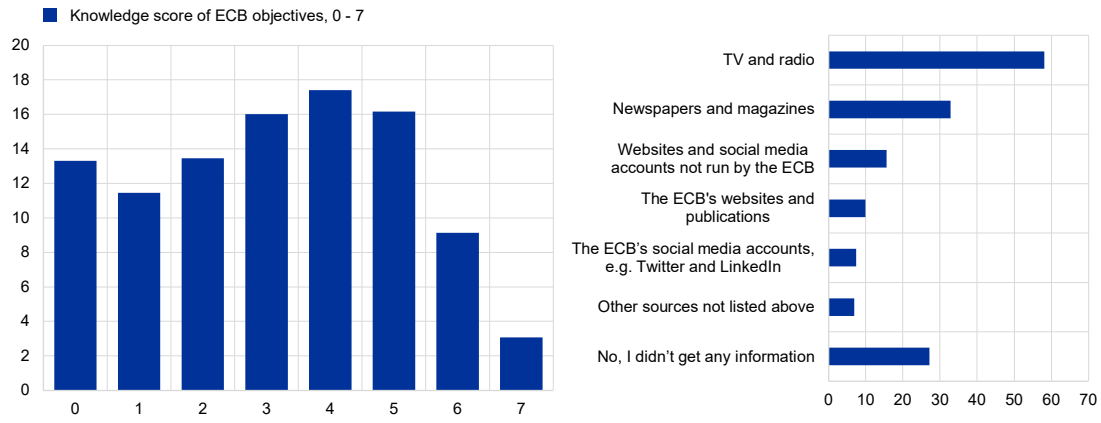
Question	Correct: ECB President	Correct: ECB mandate	No information, last month
Percentage of respondents	55.0	46.2	27.1

Source: CES – May 2020 data.
Notes: Data have been weighted for population representativity.
Question asked: Respondents were asked to assess seven statements (multiple response) about the objectives of the ECB: *(1) An unemployment of at most 5% in the euro area (2) Setting the income tax in the respondents' country; (3) An inflation rate that is close to but below 2% in the euro area; (4) An economic growth rate of at least 3% in the euro area; (5) To keep interest rates constant across time; (6) Supervision of large European banks; (7) To decide about government budget and spending in the respondents' country*. Respondents could choose between true, false or don't know options.

Chart A

Distribution of ECB knowledge and information sources

(percentage of respondents)



Source: CES – May 2020 data.
Notes: Data have been weighted for population representativity.
Questions asked: (a) Respondents were asked to assess seven statements (multiple response) about the objectives of the ECB: *(1) An unemployment of at most 5% in the euro area (2) Setting the income tax rates in the respondents' country; (3) An inflation rate that is close to but below 2% in the euro area; (4) An economic growth rate of at least 3% in the euro area; (5) To keep interest rates constant across time; (6) Supervision of large European banks; (7) To decide about government budget and spending in the respondents' country*. Respondents could choose between true, false or don't know options.
(b) *In the past month, have you seen or heard information about the European Central Bank (ECB) from any of the following sources?* For each item a binary response (yes/no) was possible with randomised ordering of the response items.

In May 2020, the CES incorporated a set of additional questions to investigate how well-informed the public is about the objectives of the ECB and which information sources reach households across the six largest euro area countries, i.e. Belgium, Germany, Spain, France, Italy, and the Netherlands, allowing for cross-country comparisons. First, the CES asks respondents to name the current President of the ECB. Second, the CES asks respondents seven true/false questions about ECB's objectives. As a proxy for ECB knowledge, we construct an index, ranging from zero to seven, representing the number of correct responses. Third, the CES asks which sources of information respondents use to get information about the ECB.

Table A shows that while more than half of the respondents know who the current President of the ECB is, details about the ECB's price stability mandate are less well-known. In particular, slightly less than half of the respondents (47%) correctly identify the ECB's price stability objective. More than a quarter of respondents (27%) report not having obtained any information about the ECB in the last month. Chart A shows the distribution of the knowledge score of respondents about the ECB's objectives. Most respondents answer three to five of the seven questions correctly, yet a non-trivial fraction of respondents answered just two questions or fewer correctly. Indirect communication channels – namely, TV and newspapers – represent the most prevalent sources of information for consumers about the ECB. In addition, outreach via direct communication channels and, specifically, ECB social media or the ECB public website, is most prevalent among young participants (18 to 34 years old) with more than 15% reporting either one of the two or both information sources.

Heterogeneity in knowledge about the ECB objectives

The CES sheds light on heterogeneity in knowledge about the objectives of the ECB. In line with previous research (Van der Cruijsen et al., 2015; Mellina and Schmidt, 2018), the CES data shows on average greater knowledge about ECB objectives for male, higher-educated, consumers with

higher income and older consumers. Also, consumers with higher level of financial literacy also tend to have higher knowledge about the ECB.

Multivariate regression analysis suggests that communication channels contribute significantly to the public's knowledge of the ECB objectives. Newspapers, TV/radio, non-ECB web sites and ECB media enter with positive and significant coefficients. TV/radio has the largest impact on the ECB knowledge score. We further investigate how knowledge about the ECB impacts consumers' trust in it. Accounting for demographic and socioeconomic factors, we also find a positive and significant effect of ECB knowledge on trust in the ECB. This association suggests higher levels of public's knowledge about the role of the ECB could increase public trust in it. This is consistent with previous studies (Hayo and Neuenkirch, 2014; Mellina and Schmidt 2018; and Christelis et al., 2020).

Knowledge about the ECB's objectives is related to inflation expectations

Finally, the CES enables us to examine how ECB knowledge affects consumer inflation expectations, which is a highly policy-relevant topic. CES data shows that, on average, knowledge about the ECB is negatively related to one-year and three-year ahead inflation expectations, even after accounting for trust in the ECB. Like this evidence, but in a different context, Rumler and Vulderrama (2020) find that people with more knowledge of inflation and monetary policy (i.e. with higher scores on the inflation literacy indicator) have significantly lower inflation expectations both in the short and long run.

However, we find that the association between the ECB knowledge indicator and inflation expectations is not uniform across different percentiles of the distribution of inflation expectations. In particular, higher ECB knowledge is associated with higher inflation expectations when the latter are at the lower end of the distribution, whereas lower ECB knowledge is associated with higher inflation expectations when consumers have inflation expectations at the upper end. This suggests that better understanding of ECB objectives by the public could contribute to anchoring consumers' inflation expectations, which is in line with findings by Van der Cruijsen et al. (2015).

5 Labour markets

Labour market data are essential to gauge the state of the economy. Employment, unemployment and wages are all key variables, affecting the economy's growth potential, degree of slack and inflation. A comprehensive assessment of labour market developments is therefore crucial for central banks in undertaking monetary policy.[48] The labour market affects price developments in many ways. Labour income is the biggest component of household income, affecting consumption and savings developments, which affects prices. Labour costs are an important component of firms' costs and thus of producer prices. The labour market in the euro area is subject to country heterogeneity in the structure of the economy and in the labour market institutions, which may also affect the transmission of monetary policy. More granular information, such as that on labour market transitions, can provide information that helps to understand search and matching frictions and assess wage developments.[49] In addition, information on hours worked and their determinants helps to disentangle demand and supply factors of total labour input.[50] Moreover, workers' expectations about their labour market status and earnings growth is important to understand the state of the labour market and may provide an indication of price and consumption behaviour.

The CES provides timely and unique information on a wide range of labour market indicators which is available much faster than comparable indicators from other sources. Some labour market variables in the CES are available monthly – allowing for a timely assessment of ongoing developments. These include the perceptions and expectations of respondents concerning changes in their hours worked or expectations on the national unemployment rate. Other variables are available at a quarterly frequency, including the respondent's employment or activity status, the expectation of losing or finding a job, degree of match between their job and skills or job search behaviour. The panel dimension is particularly useful, as it allows transition matrices to be built between different labour market statuses and – by using the available information on employment tenure – job-to-job transition probabilities. In addition, some information related to labour market analysis is collected when the respondent first joins the panel or when there is a change in their labour market status. This includes, for example, the type of contract, age, level of education and income – which can then be linked to labour market expectations (Table 5.1). The survey therefore not only allows for a timely assessment of labour market developments but also delivers information about the labour market that is not available from other sources.

48 See Blanchard et al. (2015).

49 See Christoffel et al. (2009).

50 See David et al. (2019).

Table 5.1
Summary table for the labour market

Description	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
Qualitative questions: percentage of respondents who…									
…are employed	53.7			55.4			53.4		
…are unemployed looking for a job (a)	10.3			10.0			5.1		
…are unemployed not looking for a job (a)	26.3			27.3			38.2		
...work part-time	11.9			12.9			12.2		
…have a temporary contract if employed (b)									
…have been employed for less than three months	8.3			7.9			7.4		
…experienced a decline in hours worked in the past month	41.5	35.0	28.5	21.5	17.6	18.8	17.7	18.9	18.3
…expect a decline in hours worked in the next 3 months	28.1	17.8	13.8	13.1	12.5	12.9	13.2	16.1	13.2
Qualitative questions: average across respondents (or in percentage if probability)									
Average probability of losing their job if employed (c)	14.9			11.8			11.6		
Average probability of finding a job if unemployed (c)	10.9			8.4			30.9		
Average probability of starting to look for a job or new job if not looking or if employed (c)	24.9			17.8			17.6		
Average job satisfaction (scale 1 to 7)	3.3			3.3			3.2		
Average match between the job and own skills (scale 1 to 7)	4.5			4.6			4.4		
Average assessment of the country-wide unemployment rate	14.5	14.1	14.2	14.0	13.6	13.8	13.2	13.1	13.0
Average expectation of the unemployment rate in 12 months	16.4	15.5	14.8	14.5	14.8	14.0	14.0	14.2	13.8
Average number of job applications if unemployed (d)	18.9			15.5					
Number of observations	**9,045**	**9,508**	**10,098**	**10,382**	**9,573**	**10,464**	**10,925**	**10,321**	**10,428**

Source: CES – The latest observation is for December 2020.
Notes: Weighted pooled data across countries. Due to a methodological change introduced in October, the levels are not directly compared with the two previous waves of the quarterly survey; the type of contract is reported only once when entering the panel and this information may no longer be accurate in the subsequent waves; calculations exclude "don't know" answers; (d) a methodological change introduced in the quarterly survey in October moved from open answers to multiple choice answers.
Questions asked: See the Appendix for the exact wording/more details.

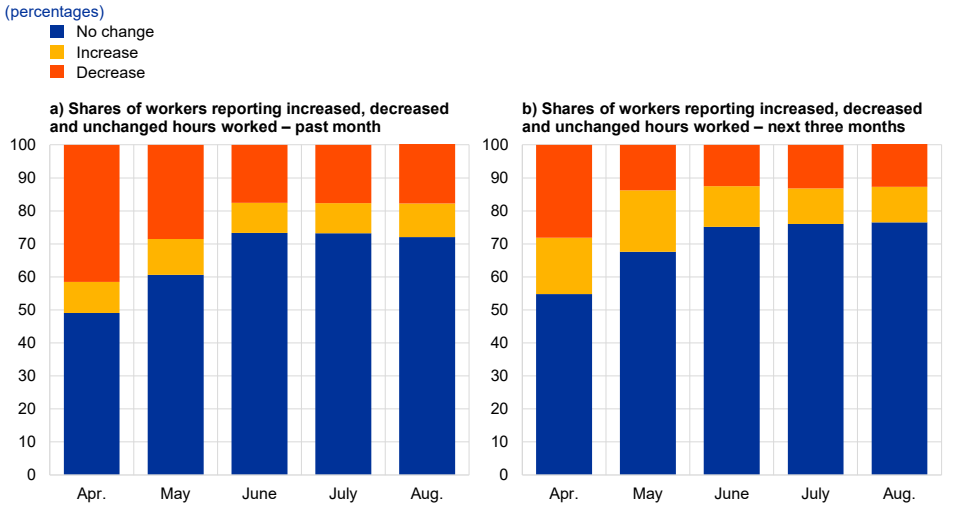
5.1 Developments in hours worked

The CES provides high-frequency and timely qualitative information on respondents' perceptions and expectations about hours worked. More specifically, it asks how the number of hours worked has changed in the past month and how it is expected to change in the next three months. Information on hours worked is only available from other sources with a considerable delay, and the forward-looking counterpart of this indicator is not available from other sources. This information was especially useful at the beginning of the COVID-19 pandemic in spring 2020. As shown in Chart 5.1, the CES data clearly captured both the decline in hours worked in the period following the introduction of COVID-19-related restrictions, and its subsequent normalisation around August 2020. The development in expected hours worked

mirrored the reported developments in actual hours (Chart 5.1b)): while in April 2020 expectations for declining hours dominated, by August 2020 (and for the rest of the year) respondents expected on balance no further decline in hours worked.

Chart 5.1

Changes in hours worked

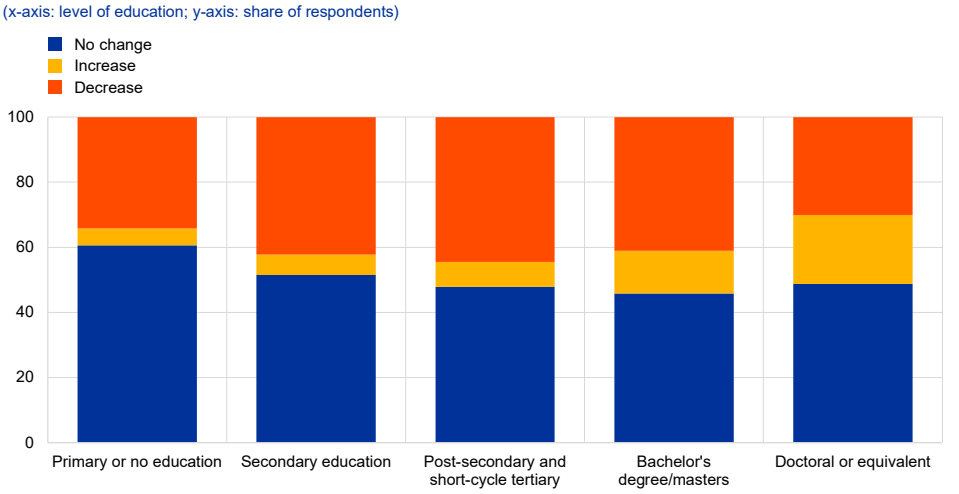


Sources: CES – The latest observation is for December 2020.
Note: Weighted pooled data across countries.
Questions asked: (a) *In the last month, have you changed your behaviour in any of the following areas because of concerns about the coronavirus (COVID-19)? The number of hours you work per week.*
(b) *In the next 3 months, do you expect to change your behaviour in any of the following areas because of concerns about the coronavirus (COVID-19)? The number of hours you work per week.*

Changes in hours worked, were strongly correlated with the education level of the respondent at least in the early months of the COVID-19 crisis (Chart 5.2). This may be explained by education being a rough proxy for the ability to work remotely and the type of work performed. In April 2020, at the initial peak of the Covid-19 shock, the share of respondents reporting lower hours worked displayed a U-shaped pattern, with a relatively small decline reported by those with primary or lower education at the one end of the scale, and by those with a masters or PhD at the other end. It could be that the low education category comprises workers in sectors with unchanged or even increased activity during the lockdowns, such as catering, retail, delivery services, waste management, etc. Higher-educated respondents are more likely to do tasks which can be performed remotely. The highest share of decreasing hours was reported by respondents with secondary and post-secondary education, presumably often working on activities which are not system-relevant and hard to perform remotely. The highest share of increased hours and a low share of decreased hours was reported at the two highest education categories. This was possibly related to the need to rethink and adapt business operations in the face of the COVID-19 challenges, and for medical professionals the increased workload related to the pandemics. This also refers to respondents with doctoral degrees. These differences were largely alleviated by August, and remained negligible during the remainder of the year, with only those with a university degree still reporting a somewhat higher share of increased hours compared to other groups.

Chart 5.2

Shares of workers reporting a decrease/increase in hours worked in the past month, by level of education, April 2020



Source: CES – April 2020 data.
Notes: Weighted pooled data across countries.
Question asked: *In the last month, have you changed your behaviour in any of the following areas because of concerns about the coronavirus (COVID-19)? The number of hours you work per week.*

5.2 Labour market expectations

5.2.1 Individual expectations

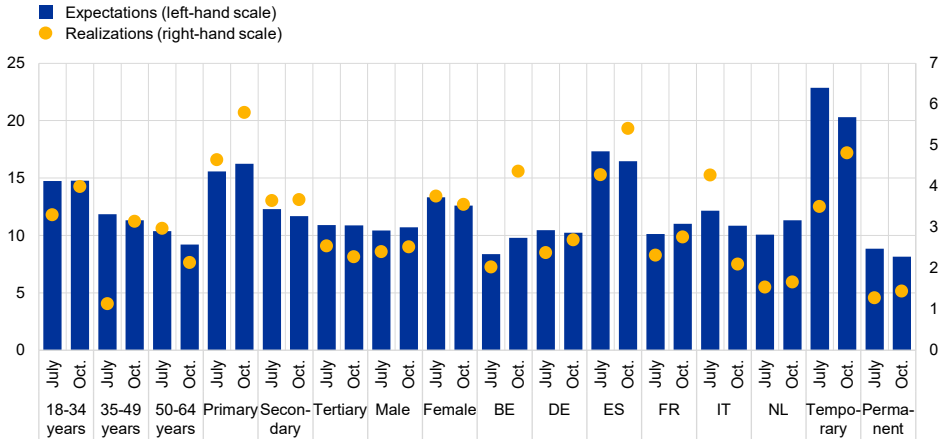
The CES collects information on a quarterly basis on individual expectations about the probability of job loss, the probability of finding a job and the probability of starting to look for a job in the next three months. This information is useful to assess the expected behaviour of individuals in the labour market and to draw conclusions about the overall labour market situation. The resulting data are unique to CES and not available in other euro area surveys.

Expectations about job loss are very heterogeneous across demographic groups and are well aligned with actual transitions (Chart 5.3). The largest difference in expectations of job loss is between temporary and permanent employees. The perceived probability of job loss declined from July to October 2020, reflecting the improvement in the pandemic situation. Expectations about job loss were higher than actual transitions, but there was co-movement between the two series. Young and low-educated workers have higher average expectations of job loss, and it was among these two groups that expectations of job loss declined more in the initial phase of the COVID-19 crisis. The gender breakdown shows that women have slightly higher expectations of job loss than men – reflecting higher actual employment losses among women. Comparing developments across countries, Spain stands out as the country with the highest average expectations of job loss, which is consistent with higher labour market flows in Spain captured by Eurostat's Labour Force Survey.

Chart 5.3

Expectations of job loss and actual transitions

(x-axis: month and HH characteristic; y-axis: probability of job loss (left-hand scale), percentage of respondents (right-hand scale))



Source: CES – The latest observation is for October 2020.
Notes: Weighted data. Expectations represent the expected average probability of losing their job in the next three months. Realisations represent the share of respondents that effectively transitioned from employment to unemployment between July and October.
Question asked: *What do you think is the percentage chance that you will lose your current job during the next 3 months? - The question is asked to individuals who are employed (part or full-time), temporarily laid-off and expect to return to their job or are on extended leave (disability, sick, maternity or other leave).*

Consistent with the deterioration of the labour market, between April and July 2020 the perceived probability of finding a job and probability of starting to look for a job declined somewhat. This improved in October reflecting the improvement in the economic situation. The CES allows us to identify that the lower expectations of finding a job in July were due to lower expectations among the unemployed not looking for a job. Indeed, looking only at unemployed workers, an important factor affecting expectations of finding employment is job search. The unemployed searching for a job have an average expected probability of finding a job in the coming three months of about 33%, while for those not searching the probability was only about 15% in July and this gap in expectations between those searching and those not searching remained broadly constant in October (Chart 5.4). Among those searching, about 50% had sent between one and ten job applications in the three months up to July. The CES also allows us to identify the reasons for not searching and to obtain an idea about the prevalence of discouraged workers. In April 2020, 25% of the unemployed not looking for jobs indicated that a reason for not looking was that they believed there were no suitable jobs available.[51]

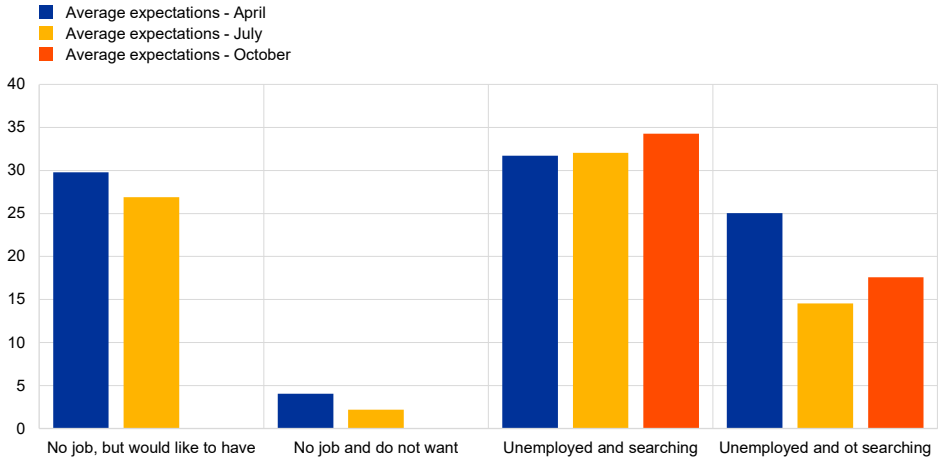
Employees that experienced or expect a decrease in hours worked have a substantially higher expectation of job loss. This is another element supporting the internal consistency of the answers to the survey. While the deployment of job retention schemes across countries has contained a sharp rise in unemployment, they also hide greater slack than is observable in official unemployment statistics. Employees on these schemes may fear that the reduction of working time is an intermediate stage before unemployment.

[51] The COVID-19 pandemic led to a large fall in the labour force. For an assessment of the euro area labour market during the COVID-19 pandemic see, for example, ECB (2020).

Chart 5.4

Expectations of finding a job in the next three months

(x-axis: unemployment situation; y-axis: probability of finding a job



Source: CES – The latest observation is for October 2020.
Note: Weighted pooled data across countries.
Question asked: *Please think about the types of job that may be available to you. What do you think is the percent chance that, within the coming 3 months, you will find a job that you will accept?*
In April and July, "*no job, but would like to have*" and "*no job and do not want*" were two of the options on the question about labour status. The respondents who chose one of these options had to choose further options, among which "*unemployed and searching*" and "*unemployed and not searching*". Therefore, the last two categories are a subset of the sum of the first two categories. Due to the methodological change, the category "*No job, but would like to have*" and "*No job and do not want*" are not available any more in October.

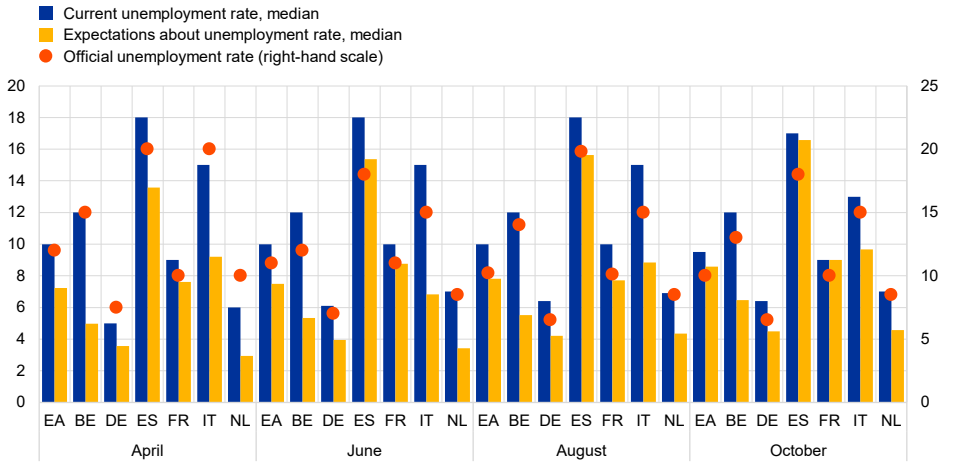
5.2.2 Aggregate unemployment expectations

The CES asks respondents about current unemployment rates and expected unemployment rates in their own country, 12 months ahead. Both the perception of the current unemployment rate and the expected unemployment rate are on average substantially higher than the official unemployment rate. This difference between the official unemployment series (available at the time of the survey) and the median of perceived unemployment was particularly large in the initial months of the survey but narrowed towards the end of 2020. The difference between unemployment perceptions and the official unemployment rate is less pronounced in some countries than in others. For example, in December the perception of the unemployment rate in Spain and France was close to the official unemployment rate, whereas in Belgium the difference remained large (Chart 5.5).

Chart 5.5

Current unemployment rate, expected unemployment rate and official unemployment rate

(x-axis: country and month; y-axis: unemployment rate in percentages)



Source: CES – The latest observation is for December 2020.
Notes: Weighted data. Values for "Perceptions about current unemployment rate" and "Expectations about unemployment rate" represent means. Official unemployment rate is obtained from EC (Eurostat) and ECB calculations. It depicts the latest known value of the unemployment rate at the time point of answering the CES question, hence it refers back to two months earlier. For instance, for December, the unemployment rate for October is shown, as it is the most recently available value.
Questions asked: (a) *What do you think is the current unemployment rate in the country you currently live in?*
(b) What do you think will be the unemployment rate 12 months from now in the country you currently live in?

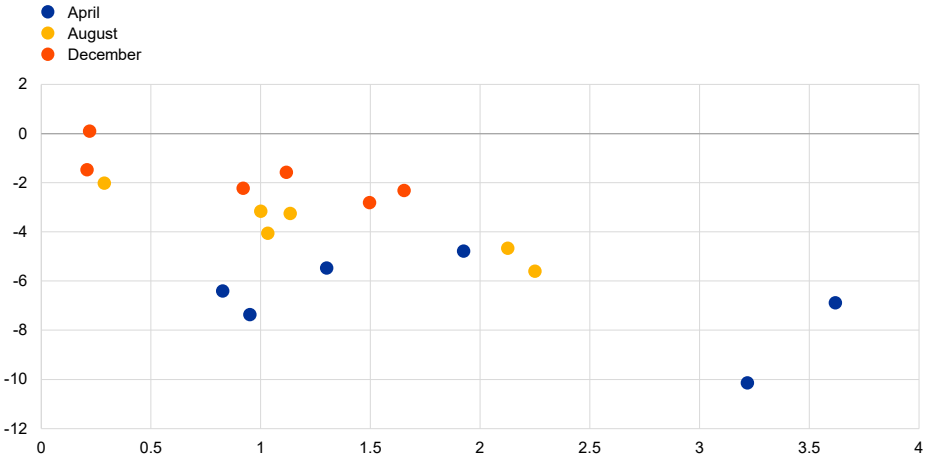
The CES results on macroeconomic unemployment expectations are broadly in line with the European Commission Business and Consumer Surveys. Unemployment expectations 12 months ahead in the Commission's survey increased sharply between March and April last year and subsequently declined, albeit remaining significantly above the levels observed in February 2020. The CES results appear to be generally aligned with those of the European Commission survey, but levels between the two surveys cannot be compared as the Commission survey is a balance of expectations (difference between answers that expect an increase and those that expect a decrease) whereas in the CES unemployment expectations are quantitative. In both surveys, unemployment expectations peaked in April 2020 and declined after that, but remained more elevated than before the pandemic. The elevated unemployment expectations 12 months ahead provide an indication that respondents expected the adjustment to the COVID-19 shock to be protracted.

Interestingly, there are differences between unemployment and economic growth expectations. The relatively weak correlation may be related to the nature of the pandemic crisis. While in April 2020, respondents expected negative GDP growth and an increase in the unemployment rate (Chart 5.6), expectations of economic growth turned positive from June onwards while respondents continued to expect an increase in unemployment. This indicates that respondents expected a protracted reaction of unemployment to the shock, which can also be related by the sizeable number of people in job retention schemes.

Chart 5.6

Economic growth expectations and unemployment expectations

(x-axis: difference between expected and current unemployment rate, mean; y-axis: growth expectations, mean)



Source: CES – The latest observation is for December 2020.
Notes: Weighted pooled data across countries. The difference between expected and current unemployment rate refers to the unemployment rate 12 months from now minus the respondents' assessment of the current unemployment rate.
Questions asked: (a) *During the next 12 months, by how much do you think the economy will grow/shrink?*
(b) *What do you think is the current unemployment rate in the country you currently live in?*
(c) *What do you think will be the unemployment rate 12 months from now in the country you currently live in?*

5.3 Aggregate labour market statistics

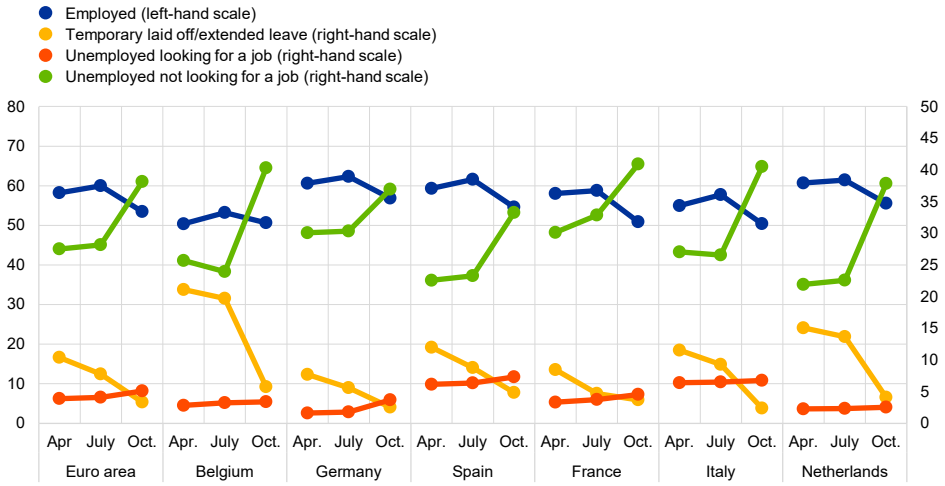
The CES also provides some information about the aggregate situation in the labour market, which can be broadly compared to the data available from official statistics. This includes information about the unemployment rate, the employment rate and the share of inactive persons. CES respondents are asked for their employment status when they first enter the panel and subsequently on a quarterly basis. It should be noted that survey results are available faster (about one month after the end of the reference period) than similar information from alternative sources, such as the European Labour Force Survey.

Chart 5.7

Overview of labour market aggregates

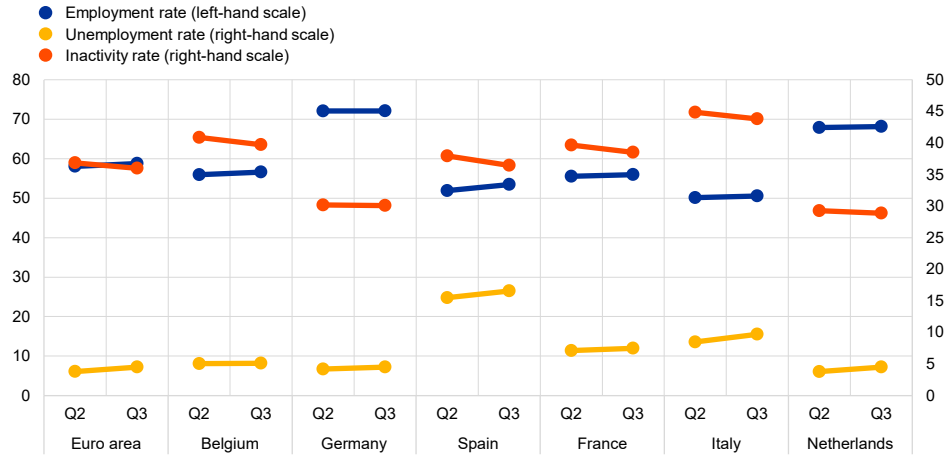
a) Overview of labour market aggregates in April, July and October – based on CES

(percentages)



b) Overview of labour market aggregates in Q2 and Q3 – official statistics

(percentages)



Sources: CES and Eurostat – The latest observation is for October 2020.
Notes: Weighted data. All categories refer to the sum of respondents in the respective employment status divided by the total sample, without age limitations. Employed people exclude respondents who reply that they are on extended leave or temporarily laid-off. The large structural break between July and October in the unemployed and inactive shares is due to a major methodological change, hence the levels before and after the change are not directly comparable. The employment rate is defined as employed people divided by the number of people aged 15-74 from Eurostat; for Germany due to lack of Eurostat data it is calculated as the number of employed from Eurostat, divided by the population in the respective age group from the LFS. The unemployment rate is the number of unemployed divided by (employed + unemployed) as a proxy of the labour force. The inactive share is the number of inactive people aged 15-74 as a share of the population in this age group, both from LFS.
Question asked: *What best describes your current employment situation?*

Overall, the aggregate labour market information derived from the CES compares well with the official data series, but there are also some differences. The relevant benchmark for the CES aggregate labour market data are the national accounts and the Labour Force Survey. However, the comparison needs to consider different definitions and reference periods. In relation to the labour status of respondents, the pilot survey has been used to experiment with different ways to frame the question and formulate the response options in order to come up with the best methodology. Notably, in October 2020, there was a substantial change related to the way the response options were structured, which impacted the number of respondents

replying that they were inactive or unemployed. This makes it difficult to directly compare the unemployment and inactivity rates before and after this change. However, with the new methodology, the rates became much more aligned with official statistics (Charts 5.7a and 5.7b). The CES-based employment rate (which includes persons working full- or part-time but excludes persons who declare themselves to be temporarily laid-off or on extended leave) is somewhat lower than the employment rate based on Eurostat data, particularly in the cases of Germany and the Netherlands. One reason may be that in the CES, the rate is defined as employed persons as a share of all respondents, whereas the Eurostat rate is calculated as a share of the respective age group. However, the rate can also be affected by the exclusion of those on extended leave or temporarily laid-off (see the discussion on inactivity below). As regards unemployment, with the new methodology adopted in October 2020, the CES measure of the unemployment rate appears to be broadly in line with the official unemployment rate, also including the higher values for Spain and Italy (although the caveat about different definitions applies in this case as well)[52]. The CES estimate of inactivity using the new methodology is also relatively well aligned with the official inactivity rate, including – in the country dimension – the higher values for Belgium and Italy. The share of people "on extended leave" and "temporarily laid-off" in the CES is treated as a separate category, as it may be relevant in certain circumstances – for example in capturing the status of some of the respondents after the COVID-19 shock. With the new methodology, it seems to concern a low share of the respondents (below 5%) but is particularly high in Belgium and the Netherlands (nearly 15%). As far as respondents in these two categories keep an employment relationship with their employer, this could also partly explain the lower CES employment rate in these two countries.

5.4 Labour market transitions

By reporting the employment status of respondents at regular intervals, the CES enables us to construct transitions between different employment statuses over time. The information on these flows is more detailed than in other sources and allows the analysis of transitions across various statuses for different groups of individuals. For instance, flows to and from full and part-time, temporary and permanent contracts can be distinguished, as well as to and from the two particular labour market statuses "temporarily laid-off" or "on extended leave". Table 5.2 shows these transitions for the euro area, between April and July, and between July and October 2020. As in the previous section, the important caveat applies that any transitions between July and October, especially those involving unemployment or inactivity, may be heavily affected by the methodological change explained above and therefore should be interpreted with caution. It should also be kept in mind that a part of the transitions in the labour market in response to the COVID-19 crisis had already taken place before the first period considered. The percentage of full-time

[52] The Eurostat unemployment definition is more restrictive as it requires that people are available to start work within the next two weeks and have been actively seeking work in the past four weeks; in the CES the respondent simply needs to select "no job, but would like to have a job" as their status.

employed individuals losing their job is low, while the job loss rate is higher for part-time employees and even higher for those on extended leave or temporarily laid-off. Also noticeable are the large inactivity inflows in both periods: 12% of unemployed people between April and July 2020 and 48% between July and October became inactive[53]. There is also an increased inactivity inflow from part-time work in the second period compared with the first, consistent with the fact that the activity rate recovered in the third quarter. The job finding rate among the unemployed is 12% and 10% respectively, with those unemployed being more likely to find a part-time rather than a full-time job.

Table 5.2

Transition matrix between April and July and between July and October

(percentages of respondents)

		Employed full-time	Employed part-time	Laid-off/extended leave	Unemployed looking	Inactive
Employed full-time	Apr.- July	93.1	3.5	1.6	0.8	1.5
	July- Oct.	90.1	3.2	1.3	1.2	4.1
Employed part-time	Apr.- July	11.5	76.4	3.4	4.1	4.7
	July- Oct.	11.7	69.4	2.7	2.3	13.7
Laid-off/extended leave	Apr.- July	20.1	11.5	43.6	8.9	15.8
	July- Oct.	9.9	6.2	18.8	3.6	61.4
Unemployed looking	Apr.- July	4.4	7.6	5.8	70.5	11.8
	July- Oct.	4.5	6.4	3.0	38.5	47.6
Inactive	Apr.- July	1.3	1.3	5.1	2.7	89.7
	July- Oct.	0.5	3.3	0.7	0.6	94.9

Source: CES – The latest observation is for October 2020.
Notes: Weighted pooled data for the euro area. Each cell shows the percentage of respondents from the category in the leftmost column that ended the period in one of the categories listed in the first row. The numbers for the transition between July and October might be distorted and less reliable due to the methodological change in capturing labour market status in October. In the April and July data, the group responding "on extended leave" might also include some retired respondents who have chosen this option although they are actually inactive.
Question asked: *What best describes your current employment situation?*

Table 5.3 highlights differences in the share of selected transitions by country. For instance, the job loss rate of part-time employees has been much higher in Spain than other countries (14%). People on extended leave have lost their job mostly in Spain and Italy. The highest share of those entering inactivity from extended leave has been registered in Belgium, France and the Netherlands. Belgium and Germany have the highest transitions from unemployment into inactivity. At the same time, the job finding rate among the unemployed was also the highest in Spain and the Netherlands.

53 The very high share of respondents on extended leave or temporarily laid-off who became inactive (61%) is heavily affected by the change in methodology, as before the change some inactive respondents may have wrongly chosen "extended leave". The increase in inactivity between July and October is not in line with the Labour Force Survey data.

Table 5.3

Comparison of selected transitions by country between April and July

(percentage of respondents)

	Belgium	Germany	Spain	France	Italy	Netherlands
Employed to extended leave/temporary layoff	9.0	2.2	7.0	5.1	6.8	5.1
Employment full-time to part-time	1.4	4.4	2.7	1.7	4.3	5.4
Employment part-time to unemployment	0.0	2.3	13.6	0.7	5.4	0.5
Extended leave/temporary layoff to employment	8.4	14.2	23.9	27.7	26.4	4.6
Unemployment to employment	3.7	4.7	6.6	2.2	3.1	8.0
Unemployment to inactivity	15.2	20.4	4.2	13.5	9.8	9.3
Extended leave/temporary layoff to unemployment	5.1	8.4	10.0	7.5	10.8	7.5

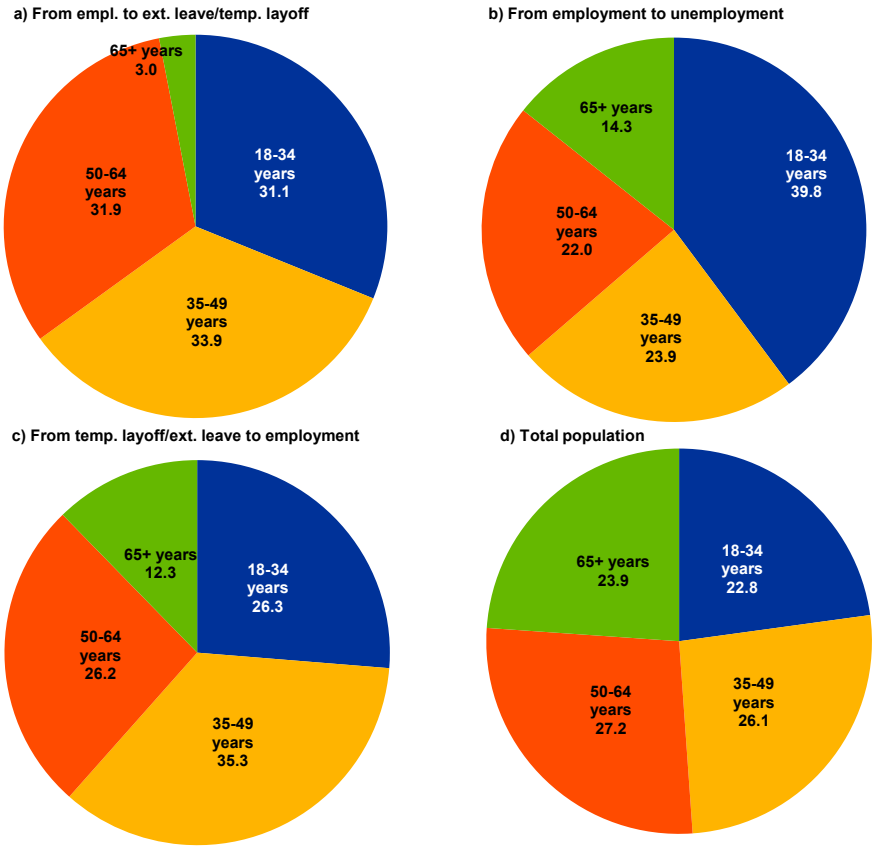
Source: CES – The latest observation is for July 2020.
Notes: Weighted data. The number in each cell shows the share of respondents who in the beginning of the period are in the respective initial state and end the period in the final state. In some cases, there may have been other transitions in between.
Question asked: *What best describes your current employment situation?*

Although not directly comparable, by looking at the share of population reporting change in hours worked to the share reporting job loss, it is possible to obtain some insight on adjustments in the labour market through the intensive or extensive margin. Based on these numbers it seems that in April 2020, the labour market adjustment through hours was more pronounced than the adjustment in the number of persons, consistent with the Eurostat data which show that in the second quarter of 2020 the adjustment in hours worked was much larger than the fall in employed persons.

Chart 5.8

Structure of the transition between April and July 2020 samples compared to the structure of the total sample, by age

(percentage of respondents)



Source: CES – The latest observation is for July 2020.
Notes: Weighted data. All numbers shown refer to the transitions between April and July, as the transition between July and October might be problematic due to the methodological change. Total population refers to the age composition of the total CES population in April and is used for comparison.
Question asked: *What best describes your current employment situation?*

The CES allows us not only to determine the size of the flows between different employment statuses, but also to investigate their structure along various dimensions. This allows identification of systematic patterns, for instance of vulnerable groups who are more than proportionally affected in a downturn. As an example, “transition groups” of particular interest are those who moved from employment to unemployment and from employment to temporarily laid-off/extended leave, but also the re-employment process, when unemployed or temporarily laid-off people find a job or return to their previous job. The composition of these sub-samples is compared to the composition of the overall population (in the above example, in April 2020 as the starting time point). Chart 5.8 compares the age structure of several groups of people undergoing transition with the structure of the whole population. Young workers (aged 18-34) are more highly represented among those moving to unemployment. Workers aged 35-49 are in the most favourable position as they appear less often in the group losing their job and more often in the one finding employment (re-employment). Older workers (aged 50-64) are less likely than the general population to lose their job, but also less likely to find a new one if

previously unemployed. Using the same methodology, it can be shown that females are slightly more likely to move to extended leave or be temporarily laid-off than the general population.

5.5 Measures of slack

Slack in the labour market, in addition to the unemployment rate, can be measured through a range of indicators including the share of discouraged workers and involuntary part-time employment.[54] The CES provides the basis for monitoring a variety of broader slack measures. For instance, the number of discouraged workers can be monitored directly, as the survey provides – on a quarterly basis – the share of respondents not looking for a job, who note that "there are no suitable jobs available". However, discouraged workers can also be inferred (also on a quarterly basis) from the probability respondents attach to starting to look for a job in the next three months.

Turning to part-time employment, the share of part-time employees declined slightly from April 2020 onwards, which is consistent with the finding in the previous section that part-time employees are more likely to lose their jobs or change to extended leave compared to full-time workers, so their declining share can be explained by transitions to other employment categories. The CES does not distinguish between workers who are voluntary and involuntary part-time. However, this is one area which can be developed in the future, as the topic is an important one, for example, in assessing developments in labour supply and inequality.

[54] See, for instance, ECB (2017) and Eurofund (2017).

6 Consumer finance

This section focuses on consumer finance, a topic that is receiving increased attention in academic research, which analyses how consumers (individuals or households) satisfy their consumption needs in the economic, institutional, financial environment they live in, with the financial resources they have at their disposal and given the constraints they face. At the core of consumer finance is the provision of financial services, such as borrowing and saving instruments, payment tools, insurance products from a lender (typically a bank or another financial institution) to a consumer. The ultimate aim is to improve consumer financial well-being and quality of life.[55] Consumer finance also plays an important role in the monetary policy transmission mechanism, through the "credit channel", according to which economic activity is affected by the amount of credit that consumers have access to in equilibrium. Factors that alter the availability of credit have an effect on consumers' spending and investment, which in turn leads to a change in output. Moreover, a shift in monetary policy can have significant heterogeneous effects among different types of consumers due to differences in credit access.

Consumer finance also has significant implications for financial stability. The credit channel interacts with credit market imperfections and affects consumers' balance sheets as well as their exposure to risks. An example of this is how the global financial crisis of 2007-2008 revealed the effects of irresponsible lending practices could be transmitted globally through the sale of securitised risk – particularly mortgages, typically the largest single credit transaction for many consumers.[56] As a consequence, consumer protection policies have been tightened, both at national and international level.

The CES includes an extensive set of questions intended to elicit information about the consumer's financial behaviour and their financing situation. Most of these questions benefited from the experience of other well-established surveys, such as the SCF and the SCE for the U.S., as well as the HFCS and the BLS for Europe. The CES complements these data sources in many dimensions, be it the higher frequency of the data collection[57], the panel component, the geographic coverage, and the focus on expectations, among others.

This section focuses on three main concepts of consumer finance: access to credit, late payments and credit applications. Table 6.1 reports the main statistics of these three consumer finance measures. In each section, the above three concepts are analysed at the aggregate level, with an overview of the main development between April and December 2020 in the six countries covered in the pilot survey. In addition,

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55 For a definition and the scope of consumer finance, see Campbell (2006) and Tufano (2009), among others.

56 US household debt as a percentage of annual disposable personal income was 127% at the end of 2007, compared with 77% in 1990.

57 Some of these questions are asked every month, some other questions are asked every quarter, depending on whether the information elicited is more or less volatile over time.

these concepts are analysed in depth, with a focus on their heterogeneity across a number of demographic and socioeconomic variables.

Table 6.1
Main measures of consumer finance

(percentage of respondents)

Description	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
Access to credit (hard/very hard)									
Past 12 months	35.3	34.8	32.2	30.5	31.4	29.0	28.8	29.3	27.9
Next 12 months	35.2	31.9	28.8	28.1	27.5	26.8	25.7	27.0	25.5
Late payments (share of HHs)									
Past 12 months	10.3			10.4			10.1		
Next 12 months	13.4			9.9			10.4		
Credit application rates									
Past 3 months									
Total application rate	15.0			14.7			16.3		
Mortgage	2.4			2.4			2.4		
Auto loan	3.0			3.1			4.6		
Credit card	3.4			2.8			2.8		
Mortgage refinance	1.6			1.4			1.2		
Next 12 months (likelihood)	30.8			31.9			33.1		

Source: CES – The latest observation is for December 2020.
Notes: Weighted data pooled across countries. Late payments and credit application rates variables are available in April, July, and October 2020 as they are collected on a quarterly basis.
Question(s) asked: Past perceived and expected credit access (C7111, C7121); past and expected running late on payments by category (Q4201, Q4251), as well as past and expected credit applications broken down by credit category (Q4011, Q4050). See the Appendix for the exact wording.

6.1 Credit access

Based on traditional economic theory, consumers have an expected consumption level over their life cycle. If income levels vary over time, borrowing should be used to smooth consumption. From this perspective, access to credit may be considered as an indicator of financial well-being. The more sources from which to borrow, the better for consumers. However, borrowing cannot be overextended; if it is, consumers will face heavy financial burdens, potentially leading to insolvency. We will analyse credit access first, and then move onto delinquencies in payment.

To understand credit constraints in more depth, the CES includes several qualitative questions that allow information to be gathered on access to credit, both retrospectively and in expectation terms. The data are collected monthly, making it possible to capture in a timely manner any change in respondents' perception of their ability to borrow financial resources in case of need. In addition, starting from April 2021, the monthly frequency will allow the analysis of how expectations match perceptions in each month. Based on these two questions, two indicators are derived. The first – *"Currently difficult credit access"* – considers whether access to credit is more difficult at the time of the interview compared to 12 months earlier and

the second – *"Expected difficult credit access"* – looks at whether credit access will be more difficult 12 months from the time of the interview.

In Chart 6.1 the two indicators, represented as the share of respondents in percent, are shown for the period April to December 2020. Three main findings arise from the chart. First, roughly one-third of respondents report problems getting access to credit, both at the time of the interview and in 12 months' time (31% and 29%, respectively; see Table 6.1). Second, since April both indicators have declined (from 35% to 28% and from 35% to 25%, respectively; see Table 6.1). Third, in all months the *"expected difficult credit access"* indicator is lower than the *"currently difficult credit access"* indicator. Taken together, these findings suggest that the financial well-being of the respondents is expected to improve, and that the respondents form their expectations about what will happen in the future mostly based on what has happened in the past, so that the two series are positively correlated.

In addition to the two indicators of difficult credit access, Chart 6.1 shows two additional economic concepts elicited in the survey that may affect credit access: the unavailability of sufficient liquidity to cover unexpected spending, and the self-assessed household financial situation.

Every month the CES asks whether the household faces the issue of insufficient liquidity to fund unexpected expenses.[58]

The indicator derived from this question provides a powerful tool for financial stability purposes, not only because it is very simple to build and to revise over time, but also because it is tailored to the financial situation of each household. Being based on data collected every month, this indicator discloses, in a very timely manner, if/when a particular household becomes financially vulnerable and for how long this condition persists. In combination with additional, rich information available in the CES about basic socio-demographic characteristic, this simple indicator can help better identify subgroups of households that may need financial assistance and develop custom policy measures for them. Over the period covered by the pilot survey, this indicator has remained fairly stable, possibly due to policy support.[59]

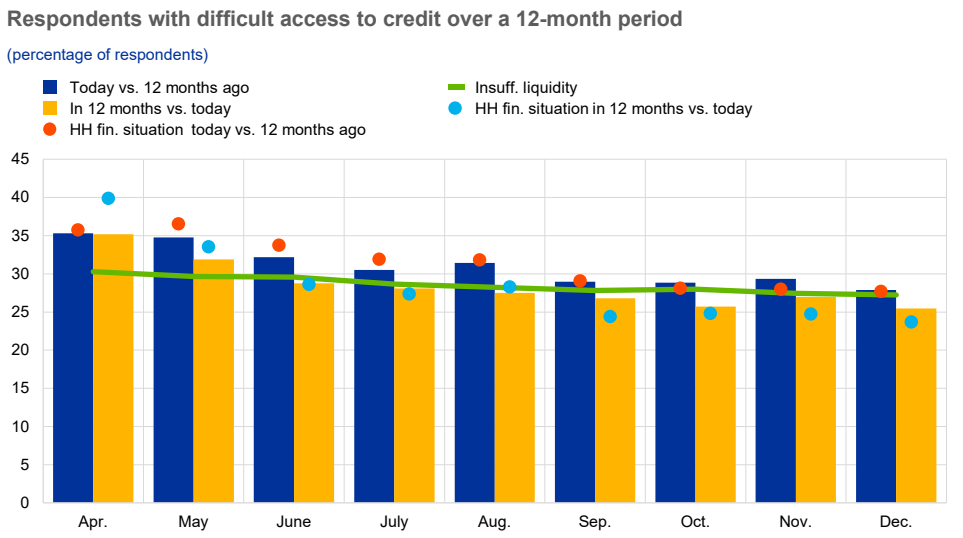
In addition, every month the CES asks two questions about the respondents' own household financial situation. As for credit access, these two indicators are derived from two questions: one about whether the household financial situation is worse at the time of the interview compared to 12 months earlier, and the other on whether the household financial situation will be worse 12 months from the time of the interview. These two indicators closely match the access to credit indicators in almost every month.

58 See variable C7010 in the Appendix for the exact wording.

59 Note that there is a considerable amount of heterogeneity among income quintiles. For example, in France, nearly 60% of households in the bottom income quintile declare that they are not in a position to face an unexpected expense equivalent to one month's salary.

Chart 6.1

Access to credit over time



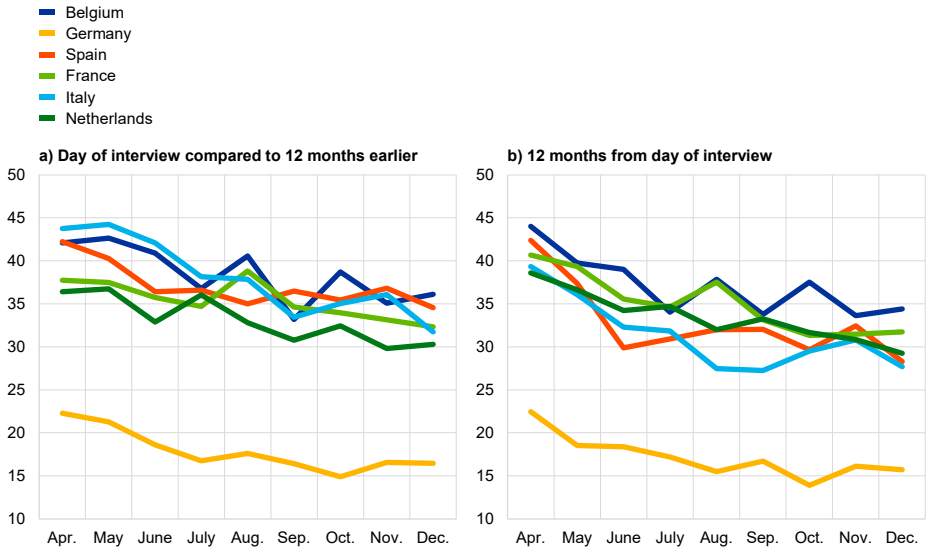
Source: CES – The latest observation is for December 2020.
Notes: Weighted data pooled across countries. Respondents are included in the difficult credit access group if they responded *"much harder/somewhat harder"* to either backward-looking or forward-looking credit access question.
Question(s) asked: Past perceived and expected credit access (C7111, C7121); currently perceived and expected household financial situation (C3010, C3110), as well as question on sufficient liquidity for unexpected payment (C7010). See the Appendix for the exact wording.

The *"Currently difficult credit access"* indicator and the *"Expected difficult credit access"* indicator broken down by country are shown in Chart 6.2a and Chart 6.2b respectively. In all months the lowest share is observed for Germany, where both indicators have an average value of 17-18% over the April-December period, substantially lower than in any other country. In fact, the other countries are rather homogeneous as far as the access to credit indicators are concerned. The average value of the former indicator ranges between 38% in Belgium and Italy and 33% in the Netherlands; the latter indicator ranges between 37% in Belgium and 31% in Italy.

Chart 6.2

Access to credit by country

(percentage of respondents with harder access)



Source: CES – The latest observation is for December 2020.
Notes: Weighted data. Respondents are included in the difficult credit access group if they responded *"much harder / somewhat harder"* to either backward-looking or forward-looking credit access question.
Question(s) asked: (a) *Compared with your household's situation 12 months ago, do you think it is generally harder or easier these days for your household to obtain credit or loans (including credit and retail cards, car loans, student loans, and mortgages)?*
(b) *And looking ahead, do you think that 12 months from now it will generally be harder or easier for your household to obtain credit or loans (including credit and retail cards, car loans, student loans, and mortgages) than it is these days?*

The CES complements other existing surveys, such as the BLS. In particular, the CES provides useful insights into the development of credit access from the perspective of households which can be combined with the information on credit access as assessed by banks from the BLS. The BLS – conducted four times a year – asks banks in the euro area a set of qualitative questions about developments in loan supply for households in the previous and next quarter.[60]

The BLS focuses on the net percentage of the loan supply, which is the difference between the share of banks reporting that credit standards applied to loan approval have tightened and the share of banks reporting that credit standards have eased. The loans to households are distinguished between loans for house purchase and consumer credit. The BLS data show that credit standards for loans to households for house purchase and consumer credit in the euro area continued to tighten over the four quarters of 2020 (though net tightening was smaller from the third quarter onwards). When banks were asked about their expectations over the next quarter they expected a net tightening of credit standards on housing loans for the same period – albeit at a slower pace from the last quarter of 2020. They also expected a net tightening of credit standards on consumer credit, except for a net easing in the last quarter of 2020. Taken together, the CES and the BLS data suggest that consumers have more optimistic views on credit access perceptions and

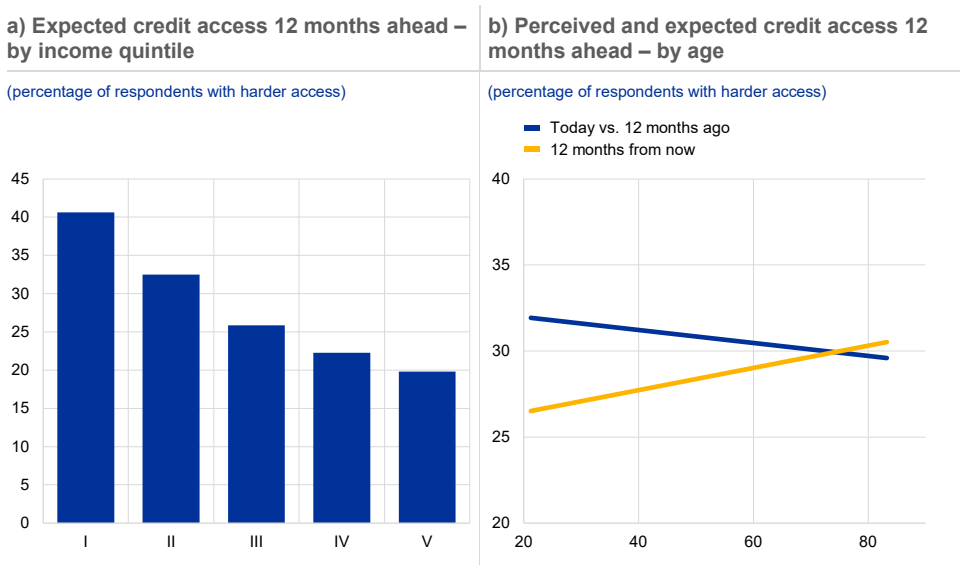
60 With respect to expectations about loan supply to households, the BLS asks banks how their credit standards, as applied to the approval of loans to households, have changed over the past 3 months on a five-point scale (1) tightened considerably (2) tightened somewhat (3) remained basically unchanged (4) eased somewhat and (5) eased considerably. The same question is repeated with reference to their expectations about the next three months.

expectations than banks. This may be due to a number of reasons. It is likely that consumers and banks use different sets of information to form their perceptions and expectations. Moreover, the CES asks consumers about their current perceptions on credit access compared to 12 months ago, whereas the BLS asks banks their current perceptions on credit access compared to the previous quarter. Likewise, the CES asks consumers about their expectations for credit access in 12 months' time, whereas the BLS asks banks about their expectations for credit access for the next quarter.

The rich set of individual background variables collected within the CES enables us to explore the extent to which consumer credit access expectations vary across specific socioeconomic characteristics and to identify the most vulnerable groups in the population. Chart 6.3a reports the share in credit access expectations by income quintiles. We observe a clear-cut income gradient: the share of consumers whose credit access expectations for the following year are "much or somewhat harder" is monotonically decreasing with income. This has implications for consumption and income inequality and, possibly, for wealth inequality.[61]

Chart 6.3

Expected access to credit – heterogeneity



Source: CES – The latest observation is for December 2020.
Note: Weighted and pooled data across countries and waves.
Question(s) asked: Qualitative questions on perceived difficulty to obtain credit on the day of the interview compared with 12 months before, as well as 12 months ahead compared to the day of the interview (backward-looking and forward-looking version, respectively). See variables C7111, C7121 in the Appendix for the exact wording.

Chart 6.3b shows the age functions of two indicators for credit access: the blue line displays the share of households reporting current credit access being much or somewhat harder than 12 months earlier, whereas the yellow line displays the share of households reporting expected credit access in the next 12 months to be much or somewhat harder than it is currently. For the former indicator, the difficulty to have

[61] Getachew (2016) shows how credit constraints affect the dynamics of wealth and thereby the dynamics of capital and output growth. In his model, credit constraints make individual productivity differences persist, which in turn leads to a persistent inequality.

obtained access to credit is monotonically decreasing with age. Interestingly, the expectation of a more difficult access to credit is increasing along the life cycle.

It is also possible to examine the relationship between credit access and other characteristics, such as financial literacy or risk aversion. In both cases, there is a statistically significant negative link, implying that lower financial literacy or lower risk aversion is associated with more difficult access to credit for households. As expected, the unemployed respondents are the most pessimistic category, likely due to the fact that unemployed household members, unlike their employed counterparts, have much lower income and a much smaller share of financial assets that could serve as collateral for bank loans, and may therefore be considered less creditworthy. Finally, there does not appear to be any significant variation in expectations for credit access expectations by housing type or by household size.

6.2 Late payments

Another indicator of financial vulnerability is whether individuals have had, or expect to have, delayed payments for different payment categories. Monitoring household debt is of major concern to the financial system. High and rapidly increasing household debt can lead to debt burden and financial vulnerability of households, which in turn poses a threat to the stability of the financial system. In addition, a high level of debt may have a detrimental effect on consumers' spending and consumption. This is widely known as the "debt overhang" problem, which affects long-term growth of the aggregate economy. The CES asks respondents on a quarterly basis whether they have had, or expect to have, delayed payments, which is an important indicator of household indebtedness.

The CES collects information on delayed payments every quarter. Respondents are asked to report whether they were more than 90 days late (in the 12 months before the date of interview) and whether they expect to be late (in the next three months from the date of interview) across different payment categories, such as rents, mortgages, other loans, utility bills.[62]

Chart 6.4a and Chart 6.4b show the share of respondents in the CES who had experienced or expected to experience delays in payments, respectively, in April, July and October. The respondents are struggling most with utility bills (especially in the past) and rent payments (especially in the future). The shares of respondents with delayed payments for utility bills and rents in the past 12 months are also very persistent across quarters (7% and 6%, respectively), whereas the shares in the future 12 months are slightly declining (from 9% to 7% and from 10% to 8%, respectively). This can be attributed to the support measures announced and

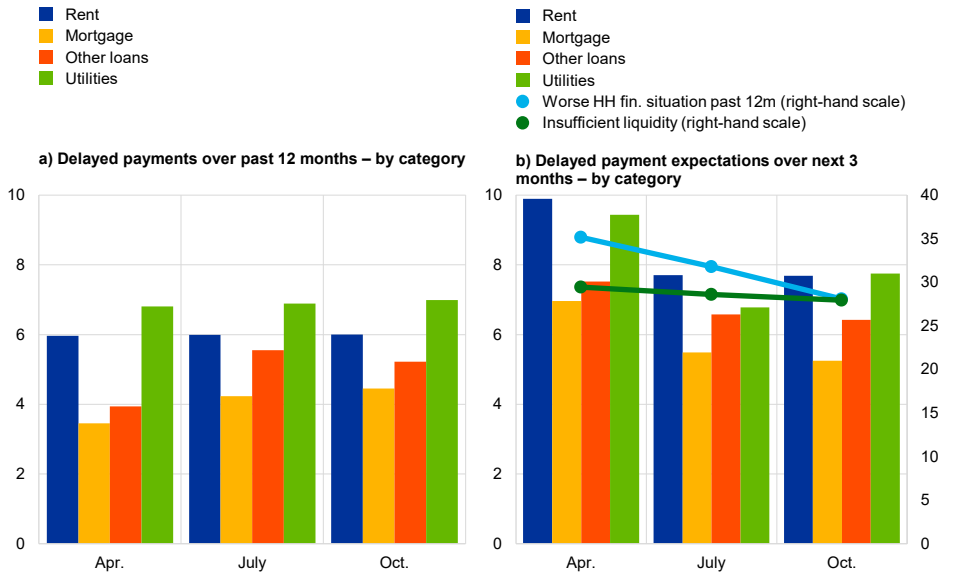
[62] The HFCS does not have late payments as a core variable. Instead, in the SCF, only households with debt at the time of the interview are asked whether they were late in any of their loan payments in the past 12 months, as well as whether they were 60 days late or more. In addition, in the SCE respondents with expected late payments are asked about the next three months and in probabilistic terms.

implemented in the wake of the pandemic outbreak.[63] Interestingly, Chart 6.4b also suggests that the improvement in expected delinquencies is correlated with the improvement in the household's own financial situation: the share of respondents whose financial situation had worsened in the past 12 months declined from 35% in April to 28% in October. The role of insufficient liquidity is more limited on expected delinquencies, as the share of respondents reporting insufficient liquidity for unexpected expenses is basically constant (29% in April and July, 28% in October). However, it is interesting to note that not having sufficient liquidity to cover unexpected expenditures is positively and significantly correlated with having late payments for all of the four categories analysed.

Chart 6.4

Delinquency in payments – past and expected

(percentage of respondents with delinquency)



Source: CES – The latest observation is for October 2020.
Notes: Weighted data pooled across countries. Shares are calculated excluding responses *"Don't know"* or *"Not applicable"* for each payment category, respectively.
Question(s) asked: (a) *Over the past 12 months, to the best of your knowledge, was your household more than 90 days late with any of the following payments on at least one occasion?*
(b) *Looking ahead over the next 3 months, do you expect that your household is likely to have difficulty making any of the following payments on time?*

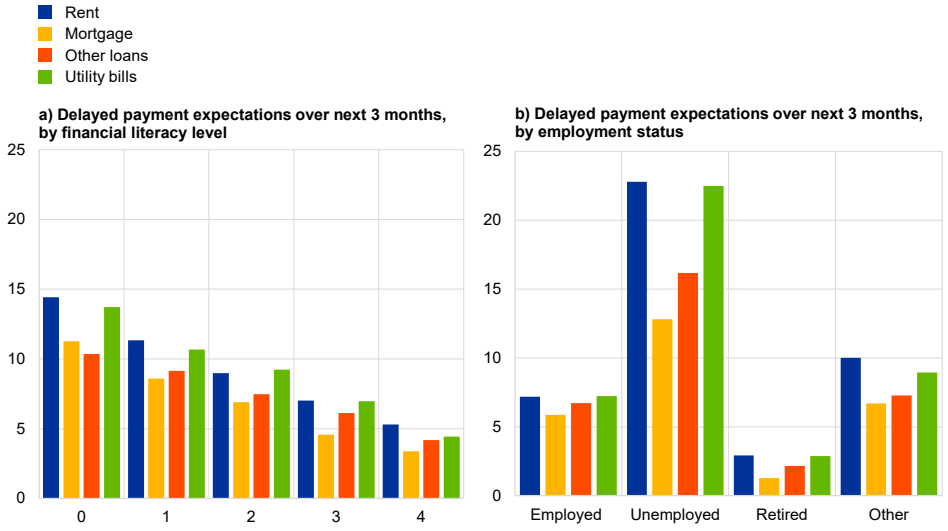
Furthermore, the CES data show that there is heterogeneity in consumer expectations about missed payments across specific sample groups. In particular, expected late payments decrease with financial literacy (Chart 6.5a) and increase for the unemployed (Chart 6.5b).

[63] Data from the New York Fed's SCE (reference period: June and August 2020) show that respondents assign an 8% chance of missing a minimum debt or rent payment over the next six months under the baseline scenario, defined as with levels of new coronavirus cases, deaths, and social distancing restrictions in the United States (including where the respondent currently lives), all remain exactly the same as they currently are today. The chances are 5% and 10% under the good and the bad scenarios, respectively (Armantier et al., October 2020).

Chart 6.5

Delinquency in payments – heterogeneity

(percentage of respondents with delinquency)



Source: CES – April, July and October 2020 data.
Notes: Weighted and pooled data. Shares are calculated excluding responses *"Don't know"* or *"Not applicable"* for each payment category, respectively. The financial literacy score is calculated as the number of correct answers to a set of four questions about financial topics that respondents are asked in the background questionnaire/when joining the panel.
Question(s) asked: *Looking ahead over the next 3 months, do you expect that your household is likely to have difficulty making any of the following payments on time?*

6.3 Credit applications

The CES asks several questions about credit applications to several categories every quarter, both with respect to the past three months and in the future 12 months.[64] From these questions, the total application rate in the past three months, defined as the percentage of respondents who applied for credit, can be computed. This rate is the sum of the respondents who applied and: (i) had their application approved, (ii) had their application rejected, and (iii) do not yet know the outcome of their application. The total application rate has remained basically stable between April and October at 15-16% (see Table 6.2). More than two-thirds of the applications were approved, up to 5% were rejected and slightly less than one-third had an unknown outcome (see Table 6.3).[65] The share of rejected credit applications has increased during the pandemic, from 3.7% in April to 5.3% in October (see Table 6.3).

64 Similar questions are asked in the SCE.

65 In the SCF, the share of households that report their credit application was turned down was 11% both in 2016 and in 2019. It should be noted that in the CES in the presence of multiple applications only the outcome of the most recent application is asked.

Table 6.2

Credit applications in the past three months among total

(percentage of respondents)

Interview month	Applied and approved	Applied and rejected	Applied but outcome unknown	Total application rate
April	10.1	0.6	4.3	15.0
July	9.7	0.7	4.4	14.7
October	10.5	0.9	4.9	16.3

Source: CES – April, July and October 2020 data.
Notes: Weighted and pooled data.
Question(s) asked: Combination of questions asking whether household has applied for specific categories of credit products. Subsequently, household is asked whether the outcome of the (most recent) application is known and if the credit was granted. See variables Q4011 to Q4041 in the Appendix for the exact wording.

Table 6.3

Credit applications in the past three months among applicants

(percentage of applicants)

Interview month	Acceptance rate	Rejection rate	Unknown outcome
April	67.4	3.7	28.8
July	65.6	4.6	29.8
October	64.7	5.3	30.0

Source: CES – April, July and October 2020 data.
Notes: Weighted and pooled data.
Question(s) asked: Combination of questions asking whether household has applied for specific categories of credit types. Subsequently, household is asked whether the outcome of the (most recent) application is known and if the credit was granted. See variables Q4011 to Q4041 in the Appendix for the exact wording.

As for credit applications in the next 12 months, the CES collects information on mortgages, loans to purchase cars, motorbikes or other vehicles, credit cards, and refinancing current mortgage, among other categories. According to Table 6.4, the expected total application rate (computed as the share of respondents who report they are likely/very likely to apply for credit) is much higher than the actual application rate. The three types of credit applications that are demanded the most are mortgages, car loans and credit cards, whereas mortgage refinancing is the least demanded.

Table 6.4

Credit applications in the next 12 months

(percentage of applicants)

Interview month	Total application rate	Mortgage	Car loan	Credit card	Mortgage refinance
April	30.8	8.0	9.9	8.6	5.4
July	31.9	9.4	13.2	8.9	6.1
October	33.1	10.7	14.0	10.1	7.7

Source: CES – April, July and October 2020 data.
Notes: Weighted and pooled data.
Question asked: *Over the next 12 months, how likely do you think it is it that your household will apply for any of the following?* (several categories of credit types to select from). See variable Q4050 in the Appendix for more detail.

As for households' credit constraints, the CES complements the HFCS by collecting data on credit applications at a quarterly frequency in a panel setting that enables

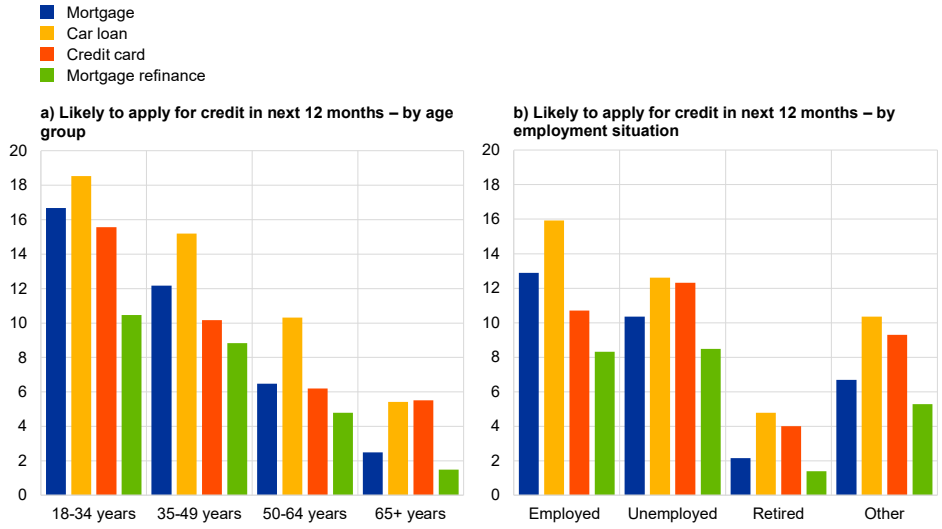
the development of credit applications by the household sector to be followed and monitored.

The information gathered in the CES on expected credit applications can be combined with the demographic characteristics of respondents/households, and other questions asked in the survey. This will enrich the understanding on which types of consumers are associated with a high demand for credit, for example, here it can be seen that credit application expectations decrease with age (Chart 6.6a) and that the employed are more likely to apply for credit (Chart 6.6b). In addition, the expected credit applications are positively and significantly correlated with household size, with not having sufficient liquidity to cover unexpected expenditures and with having experienced a deterioration in the household's own financial situation.

Chart 6.6

Credit applications – heterogeneity

(percentage of respondents likely to apply for credit)



Source: CES – April, July and October 2020 data.
Notes: Weighted and pooled data. Shares are calculated as the mean of a binary indicator equal to 1 if the respondent indicated that he/she is *likely/very likely* to apply for credit in the respective category.
Question asked*: Over the next 12 months, how likely do you think it is it that your household will apply for any of the following?* (several categories of credit types to select from). See variable Q4050 in the Appendix for more detail.

7 Housing markets

The housing market is an important sector of the economy. Residential property typically represents a household's largest single purchase and the largest individual item of a household's wealth. In addition, the housing market serves as an important medium for the transmission of monetary policy shocks to the overall economy through several channels. First, changes in house prices can have sizeable effects on the rest of the economy. In particular, a change in house prices affects the value of household wealth, thus being responsible for a positive or negative wealth effect[66] and can affect borrowing for consumption, as housing also serves as collateral.[67] Another channel is represented by changes in interest rates, that influence the demand for residential investment and often have a more significant effect on consumer spending in economies with a relatively large proportion of home ownership.[68] Finally, a well-developed mortgage market amplifies and accelerates the transmission of shocks through housing. As a result, developments in the housing market and its structure are of key concern to policy makers.

The functioning of the housing market (in particular, housing booms and busts) can also have significant implications for financial stability. In fact, many major episodes of banking distress are associated with boom-bust cycles in property prices[69] and the costs of resolving housing crises can be very high.

The CES collects rich and detailed information about housing markets from the consumer's perspective. It combines monthly data on house price expectations (defined as the expected price of the respondents' own home) and qualitative subjective assessments of housing as an investment, with quarterly data about housing-related spending. The survey allows us to detect how heterogenous countries are with respect to home ownership rates, the development of their mortgage markets and how these factors vary over time. It also allows very timely monitoring of how consumer expectations about house prices change over time and how they respond to, for example, macroprudential policies (loan-to-value caps, debt-service-to-income caps, capital requirements, among others) or shocks in the economy.

This section provides a descriptive overview of the structure of the housing market in the six countries covered by the survey and its dynamics over the period analysed for this report (April to December 2020). Section 7.1 reports on house price expectations (also on a regional level), and the attractiveness of housing as an investment. The section also refers to the relationship between house price

66 A positive wealth effect means that, following a rise in house prices, the ratio of the market value of the property to the debt on that property, typically in the form of a mortgage, rises creating an increase in equity. This can trigger housing equity withdrawals and can be a significant boost to consumer spending.

67 The role of the collateral mechanism and the effect of changes in house prices on the macroeconomy is analysed in Iacoviello (2005), and Lee and Song (2015), among others.

68 See Bernanke and Gertler (1995), and Erceg and Levin (2006).

69 See Laeven and Valencia (2020).

expectations and household income developments. Section 7.2 provides information on the home ownership structure in the aggregate sample and across countries, as well as evidence on the way housing is financed.

The variables associated with the analysis are presented in Table 7.1.

Table 7.1
Overview of housing variables

(percentage of respondents)

Description	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
Qualitative questions: percent of respondents who…									
… are renting their flat/house	33.2	33.2	33.2	33.7	32.6	33.3	33.3	33.2	33.3
…own their flat/house and have a mortgage	25.1	24.7	24.3	24.2	24.9	24.4	24.3	24.1	24.2
…own their house/flat without a mortgage	37.6	38.0	38.5	38.1	38.9	38.4	38.5	38.6	38.6
…think that buying a house in their neighbourhood is a good or very good investment	37.1	38.1	40.1	40.5	40.3	40.0	40.1	40.3	40.1
…bought real estate in the past 12 months	1.8	1.8	2.0	2.2	2.4	2.4	2.5	2.2	2.6
…intend to buy real estate in the next 12 months	4.5	4.3	4.5	4.4	4.6	4.9	4.9	4.7	4.4
Quantitative questions: average across respondents (% change)									
Average expected house price growth in the next 12 months	0.7	0.8	1.4	1.7	1.9	1.9	2.0	1.7	2.1
Average attractiveness of housing in the own neighbourhood as an investment, on a scale from 1 to 5	3.2	3.2	3.3	3.3	3.3	3.3	3.3	3.3	3.3
Average share of house-related expenditures in total household expenditure	40.1			35.9			34.6		
Number of observations	8,788	9,508	10,098	10,382	9,573	10,464	10,922	10,321	10,033

Source: CES – The latest observation is for December 2020.
Note: Weighted data.
Questions asked: See the Appendix for the exact wording/more details.

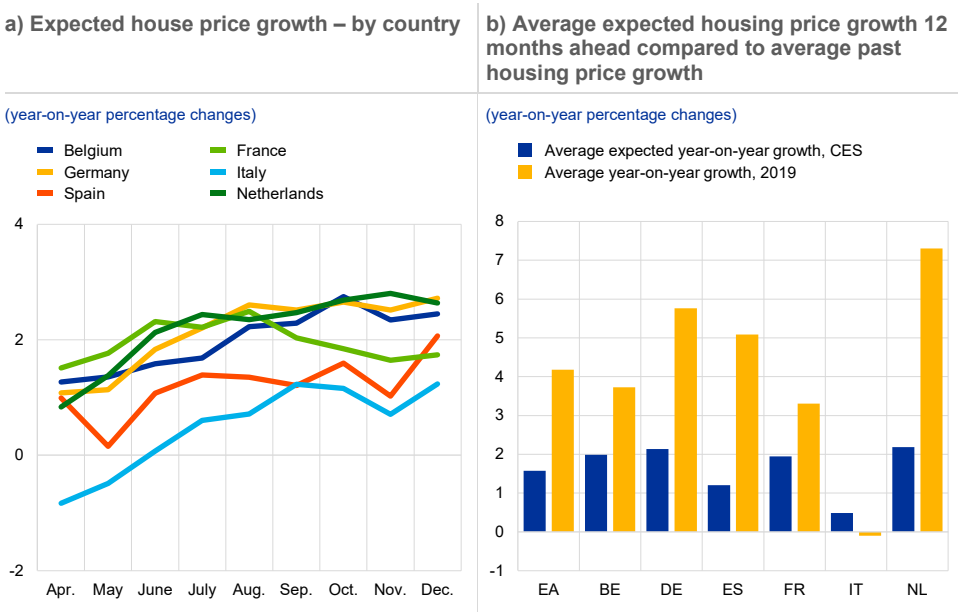
7.1 House price expectations and housing as an investment

On a monthly basis, the CES collects data on consumers' house price expectations in the next 12 months. These data are unique and fill important gaps in the housing market analysis: they are forward-looking, granular at the regional level and comparable across all large euro area countries (Chart 7.1a). In addition, expectations about euro area house prices are not available from other surveys. Developments in house price expectations in 2020 are intuitive: for example, the monthly data on expected house prices captures the post-COVID-19 changes well, as respondents' house price expectations registered a low in April, but increased gradually as of May – after the end of the spring lockdowns. However, the improvement in expectations in the summer flattened out, as awareness increased that the crisis would be protracted and that a second wave of the pandemic was likely. While the available survey data do not capture the decline in expectations

immediately following the outbreak in Europe in February-March, a comparison with the previous actual growth rate of house prices in 2019 shows that the decline must have been very pronounced (Chart 7.1b).

Chart 7.1

Housing price growth



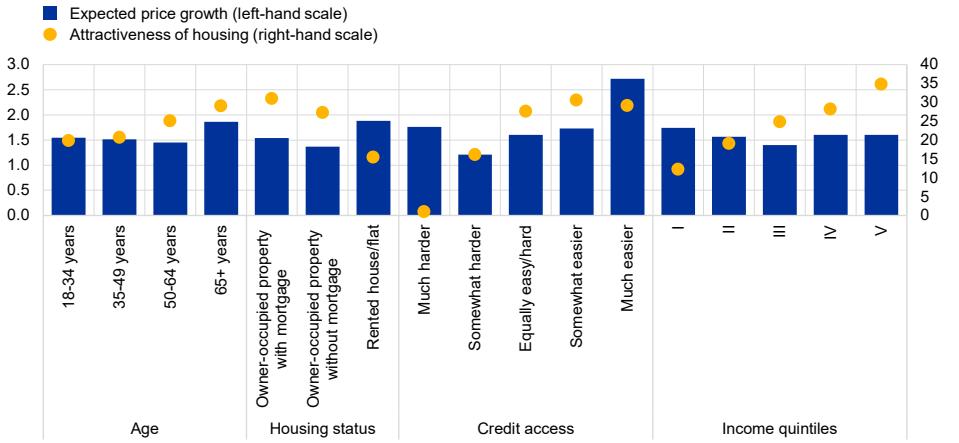
Sources: Nationale Bank van België/Banque Nationale de Belgique, Deutsche Bundesbank, Banca d'Italia, Bank for International Settlements, CES The latest observation is for December 2020.
Notes: Weighted data. Pooled data across waves for Chart 2b). The data are winsorised at the 2nd and 98th percentile.
In Figure 2b, for past price data, the average of the quarterly year-on-year growth rates over 2019 is shown. Data for residential property prices refers to transaction values for new and existing dwellings.
Question asked: *In 12 months from now, by about what percent do you expect the price of your current home to be higher/lower?*

House price expectations differ substantially across countries. Overall, there is a positive relationship between past actual house price growth observed in the course of 2019 (before the pandemic) and expected growth in the next 12 months recorded in 2020, according to CES data (Chart 7.1b). Expectations also differ between some demographic characteristics and in respondent groups with different economic expectations (the blue bars in Chart 7.2). For instance, in relation to home ownership, renters expect larger increase in prices compared to owners, with or without a mortgage. The homeowners' lower expectations might be related to their concerns about the value of the house as collateral or as an asset, especially during a crisis when income and job security has deteriorated. Both expected house price growth and the attractiveness of housing increase with age, which might be related to the increased importance of house property as a retirement provision moving along the life cycle. Respondents expecting easier access to credit also foresee higher house price growth, as they anticipate that more people will take out a loan to buy a house. Finally, expected house price growth declines with increasing income quintiles, which might reflect an inverse relationship between the affordability of housing and expected house prices. The yellow dots in Chart 7.2 refer to the attractiveness of housing as an investment, which will be further explained in the next section.

Chart 7.2

Expected house price growth and attractiveness of housing as an investment – by key demographic characteristics

(year-on-year percentage change and balance of the percentage of respondents)



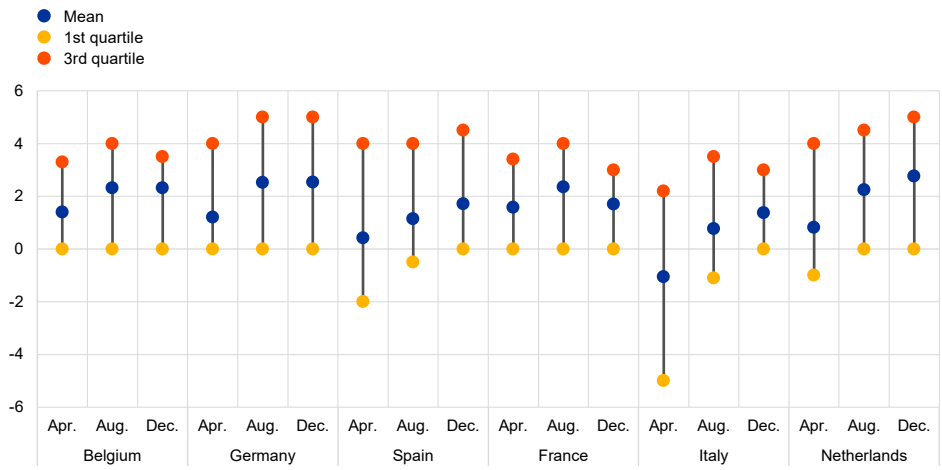
Source: CES – The latest observation is for December 2020.
Notes: Weighted and pooled data. House price data are winsorised at the 2nd and 98th percentile for the sample as a whole. Income quintiles are calculated for each country separately. Expected house price growth refers to the average of the category. Attractiveness of housing as an investment is measured as a balance indicator built from the difference between the replies *"good"* and *"very good"* minus *"bad"* and *"very bad"*, normalised by the number of respondents in each category.
Questions asked: (a) *In 12 months from now, by about what percent do you expect the price of your current home to be higher/lower?* (b) *Is buying real estate in your neighbourhood today a good or a bad investment?*

The dispersion of individual replies on house price expectations gives an idea about the degree of uncertainty of respondents regarding future developments in house prices. However, as the question refers to the expected price of the own home, it can also provide an idea about the respondents' assessment of the regional price developments – and hence, regional disparities within a country. A comparison between April and December (Chart 7.3) shows that, while in all countries the mean increased (as shown in Chart 7.1), the evolution of dispersion, and hence the degree of uncertainty, differs substantially by country. It has declined in Spain, France and Italy, while it increased in Belgium and Germany and remained broadly unchanged in the Netherlands. Hence, dispersion declined in the countries where it was highest earlier in the year.

Chart 7.3

Dispersion of housing prices – by country

(year-on-year percentage changes)

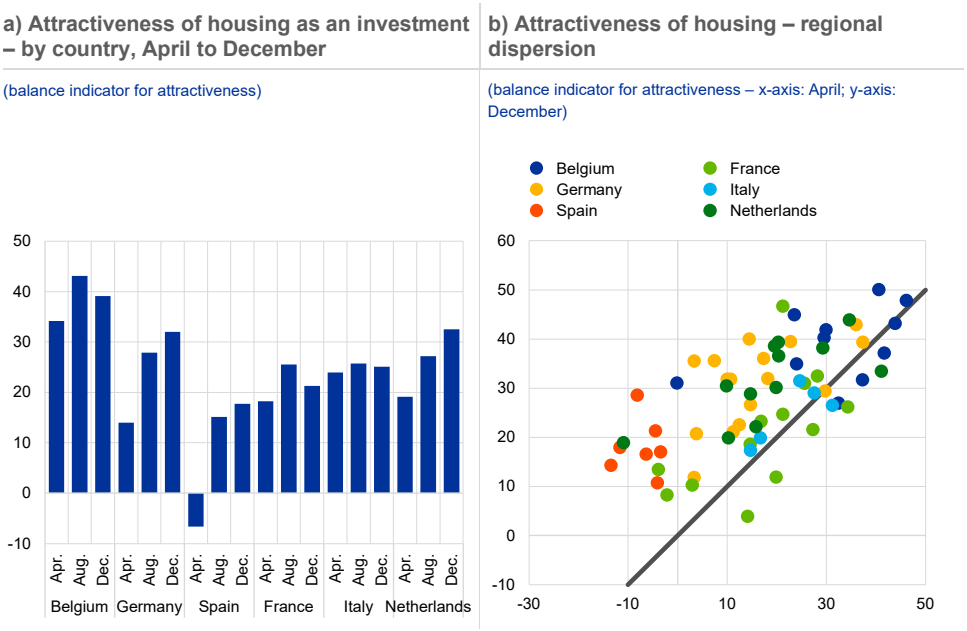


Source: CES – The latest observation is for December 2020.
Notes: Weighted data. The dots represent respectively the 1st quartile, mean and 3rd quartile of the distribution of expected house prices 12 months ahead, constructed separately for each country and month. Data are winsorised at the 2nd and 98th percentile per wave.
Question asked: *In 12 months from now, by about what percent do you expect the price of your current home to be higher/lower?*

The CES also collects data on the subjective attractiveness of housing as an investment, which can be regarded as a measure of the potential demand for housing in the respective country and region, as the question refers to “housing in your neighbourhood”. This indicator across time seems to show a pattern which is very much in line with that of expected house prices: the attractiveness of housing was lower in April (at the height of the pandemic) in all countries compared to October (Chart 7.4). In a cross-country comparison, the average attractiveness of housing was particularly low during the peak of the COVID-19 crisis in Spain and has remained the lowest, likely linked to the consequences of the bursting of the housing bubble before the global financial crisis. Belgium stands out with the highest average attractiveness of housing as an asset. Overall, the attractiveness of housing as an asset derives from its popularity as a safe asset, especially in crisis times. In order to gauge the future demand for housing, the attractiveness of housing can be combined with data on the share of respondents intending to buy a house, which has more than doubled between April and October (see Table 7.1).

Chart 7.4

Housing as an investment – attractiveness



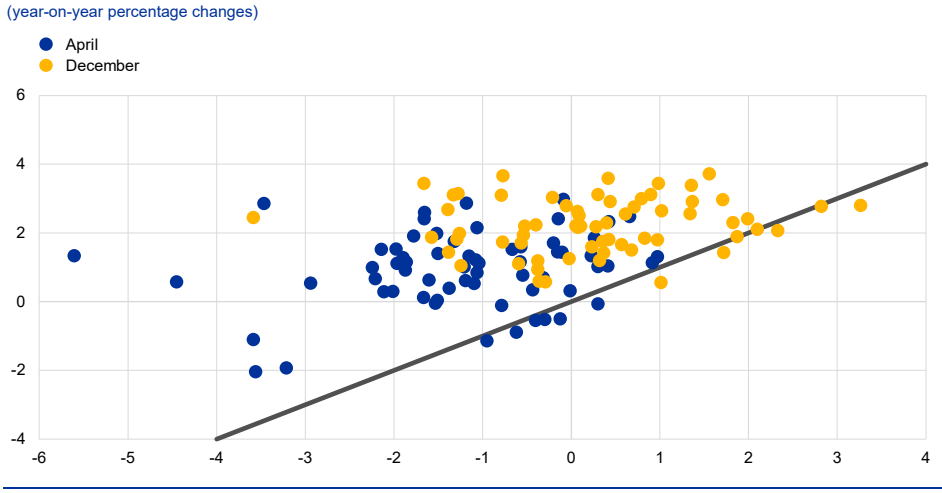
Source: CES – The latest observation is for December 2020.
Notes: Weighted data. Attractiveness of housing as an investment is measured as a balance indicator built from the difference between the replies *"good"* and *"very good"* minus *"bad"* and *"very bad"*, normalised by the number of respondents in each category. Question asked: *Is buying real estate in your neighbourhood today a good or a bad investment*?

It is particularly important to analyse regional housing market data, as there may be a substantial difference in local patterns. In particular, the difference in price developments between the largest cities and rural areas has attracted attention in recent years. For instance, in Germany, the largest cities have been registering stronger growth in house prices for a number of years.[70] The CES provides the opportunity to collect timely regional data on the NATS1 level on house price expectations, which are standardised and comparable across countries. Chart 7.5 provides an indication of the regional dispersion of regional data in April and December. While this confirms that average attractiveness in each country has increased over this period, the dispersion was higher in April, indicating a higher degree of price disparity between regions at the height of the crisis. When broken down by various social groups, the balance indicator of attractiveness of housing as investment (the yellow dots in Chart 7.2) is much greater in the higher income quintiles and for respondents with better access to credit, as investment in housing is more affordable to them.

[70] See Deutsche Bundesbank (2019).

Chart 7.5

The relationship between expected average house prices and household income in the next 12 months – April and December data



Source: CES – The latest observation is for December 2020.
Notes: Weighted data. Each dot represents data aggregated at the regional level. Data are winsorised at the 2nd and 98th percentile of the distribution.
Questions asked: (a) *In 12 months from now, by about what percent do you expect the price of your current home to be higher/lower?* (b) *During the next 12 months, I expect the total net income of my household to increase/decrease] by __ %.*

One of the advantages of the housing-related data gathered by the CES is the possibility to link these data to background characteristics of the respondents, such as age, education, employment status and income as well as to their other economic beliefs and decisions. This way, it is possible to better understand their behaviour related to the choice of residence and housing purchase or rent. In this vein, the relationship between expected house prices and expected household income is particularly interesting from a research point of view. Respondents who expect higher growth in their household income also tend to expect overall higher prices for their residential properties (Chart 7.5). This positive relationship holds at the regional level. Both types of expectations are likely to be related to the expectations for general economic prospects.

The comparison between expected household income and expected house prices can also reveal how respondents expect housing affordability to develop in the future. The diagonal line in Chart 7.5 represents the 45-degree line, where expectations for house price growth and for income growth in percentage are equal. The majority of dots are situated above the diagonal line, showing that respondents expect house price increases in the next 12 months to be higher than income increases – suggesting their expectations are of worsening housing affordability.

7.2 Structure and developments of the housing market

The housing tenure status collected in the CES and how it compares to EU-SILC is covered in Section 2.2.3, Chart 2.7b. In this section we focus on the structure of the housing market and its distribution across countries and a number of socio-demographic characteristics. Table 7.2 reports the structure of the housing market,

with the share of home owners (broken down into outright owners and owners with an outstanding mortgage) and of renters[71], for both the CES and the EU-SILC. In the six countries covered by the survey, the home ownership rate represents on average two-thirds of the sample. The housing market structure is very heterogeneous across countries. In Italy, Belgium and Spain the home ownership rates are higher than the average (77%, 73% and 71%, respectively), whereas in the remaining countries the rental market is more prevalent. The way to finance home purchases is also very heterogeneous across countries. The share of home owners with a mortgage is higher than the share of home owners without a mortgage in the Netherlands especially (55% versus 12%, respectively) and in Belgium to a lesser extent (39% versus 34%, respectively), whereas the opposite is observed in Italy especially (51% versus 26%, respectively) and, to a lesser extent, in France and Germany. In Spain, the distribution is even (35% versus 36%, respectively). This reflects the effect of different cultural approaches to housing, different historical developments and housing policies. For instance, the high share of renters in Germany is historically driven by housing policies that create and enhance incentives to rent instead of owning (e.g. Deutsche Bundesbank, 2020).

Overall, Table 7.2 shows that the CES data on housing type compare fairly well to those collected in the EU-SILC across countries. We note, however, that at the euro area level there is a slight difference as far as the home ownership breakdown is concerned: outright owners represent 35% in the CES compared to 43% in the EU-SILC; owners with an outstanding mortgage represent 30% in the CES vis-à-vis 23% in the EU-SILC. At the country level, we see that home ownership is higher in the CES for Italy and lower for Spain and France. The remaining countries have fairly comparable figures.

With this comparison in mind, it should be emphasised that the information CES provides on housing structure and the financing of housing has substantial advantages over other sources in relation to its frequency and timeliness. Surveys such as the HFCS and EU-SILC also provide this kind of information and similarly are linked to an array of individual characteristics, but they are carried out less often.

[71] This share includes also households who live in accommodation provided for free. Please note that this share represents only around 3% of the total sample.

Table 7.2
Housing type in the CES and in the EU-SILC

(percentage of respondents)

	EA	BE	DE	ES	FR	IT	NL
CES – data refer to 2020							
Owner-occupied property	64.8	73.0	49.7	71.6	55.9	77.1	64.3
Owner-occupied property with mortgage	30.0	38.9	20.6	34.0	23.7	26.6	52.6
Owner-occupied property without mortgage	34.8	34.1	29.1	37.6	32.2	50.3	11.8
Accommodation rented or provided for free	35.2	27.0	50.3	28.4	44.1	22.9	35.7
EU-SILC – data refer to 2019							
Owner-occupied property	65.9	71.3	51.1	76.2	65.1 *	72.4 *	68.9
Owner-occupied property with mortgage	23.3	42.6	25.8	28.4	31.8 *	13 *	60.4
Owner-occupied property without mortgage	42.6	28.7	25.3	47.8	33.3 *	59.4 *	8.5
Accommodation rented or provided for free	34.1	28.7	48.9	23.8	34.9 *	27.6 *	31.1

Sources: CES and EU-SILC – The CES latest observation is for December 2020.
Notes: 2019 data for EU-SILC. Weighted and pooled across countries data for the CES. Cells containing numbers with * denote that data refer to 2018.
Question asked: *Which of the following describes your (and your family's) main place of residence?*

Strong differences in home ownership are also observed for income (see Table 7.3): home ownership increases monotonically with income quartiles. The share of owners goes from 44% to 84% between the bottom and the top income quartile. The increase is particularly strong for owners with an outstanding mortgage, whose share rises from 18% to 40%.

Table 7.3
Housing types and income quintiles

(percentage of respondents)

Housing type	EA	I	II	III	IV	V
Owner-occupied	64.4	44.3	53.0	67.8	75.7	83.9
Owner-occupied property with mortgage	30.4	18.4	24.6	33.6	36.7	40.3
Owner-occupied property without mortgage	34.0	25.9	28.3	34.2	39.0	43.6
Rented house/flat or free accommodation	35.6	55.7	47.1	32.2	24.4	16.1
Total	100	100	100	100	100	100

Source: CES – The latest observation is for December 2020.
Note: Weighted and pooled across waves data.
Question asked: *Which of the following describes your (and your family's) main place of residence?*

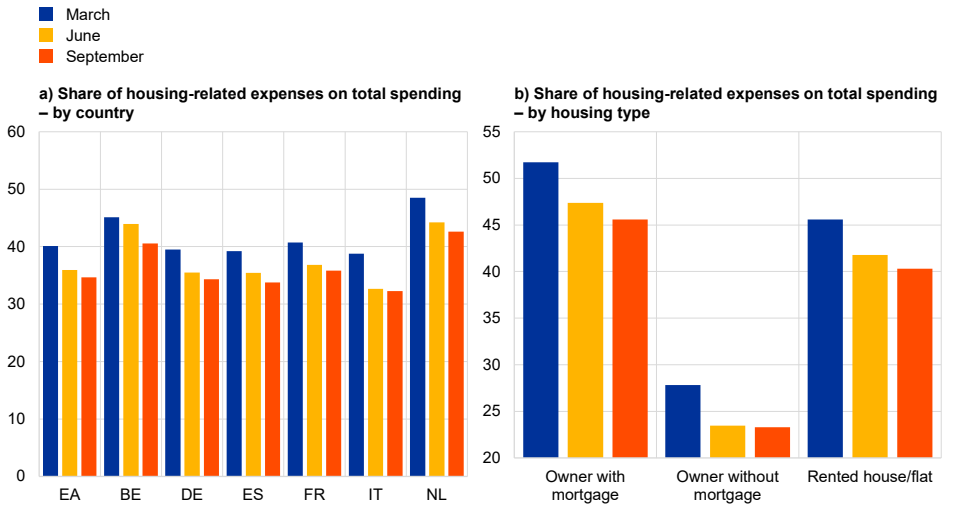
The CES includes a quarterly quantitative question to collect information about household expenditures on goods and services. The question asks about the monthly expenditure on a set of individual spending components for the month immediately before the quarterly question is asked. In other words, it is possible to compare the consumption for March, June and September, asked in April, July and October respectively. For this analysis the focus is on housing-related expenses as a part of total consumption on goods and services. This item includes rent, house maintenance/repair costs, homeowner/renter insurance, but excludes mortgage payments.

The following two charts report the share of housing-related expenses in total spending by country (Chart 7.6a) and by housing status (Chart 7.6b). The average housing-related expenses of the six countries represented 40% of total spending in March and 36% in June. The highest shares are in the Netherlands (49%, 44% and 43% in March, June and September, respectively) and in Belgium (45%, 44% and 4% in March, June and September, respectively), and for the home owners with an outstanding mortgage (52%, 47% and 46% in March, June and September, respectively). The lowest shares are in Italy (39%, 33% and 32% in March, June and September, respectively) and for the outright homeowners (28%, 24% and 23% in March, June and September, respectively). Overall, this share has declined from March to September in all countries, irrespective of housing status. This could be explained by the impact of the lockdown in March, when, being constrained at home and in conditions of forced saving (on entertainment, leisure and travel, etc.), households may have invested relatively more in renovating and improving their house, but also overall spending (in the denominator) was lower In September, when the lockdowns were eased in all countries, this effect seems to have faded. The highest drop took place in Italy (7 percentage points), the lowest in Belgium (4 percentage points).

Chart 7.6

Housing-related expenses

(percentage of total spending)



Source: CES – The latest observation is for October 2020.
Notes: Weighted data. Housing-related expenses including rent, maintenance/repair costs, homeowner/renter insurance, but excluding mortgage payments. The months in the legends refer to the month in which the spending occurred, not to the CES wave.
Question asked: *During the last month how much did your household spend on goods and services on each of the individual components listed below?*

8 Conclusions

Following the decision to develop a new survey of euro area households, the ECB launched the pilot phase of the euro area CES across the six largest euro area countries (Belgium, Germany, Spain, France, Italy and the Netherlands) in January 2020. The primary goal of the project was to build a high-quality survey related to euro area households' economic and financial activities, that would be of use for policy analysis and research at the ECB and across the Eurosystem.

Overall, the pilot has been a remarkable success, with the CES demonstrating its ability to address key knowledge gaps, strengthening the ECB's coverage and understanding of households' expectations formation and their implications for monetary policy and central bank communication. The CES has provided granular data on household economic behaviour and expectations related to consumption and income, inflation and GDP growth, the labour market, housing market activity and house prices, and consumer finance and credit access, offering timely and insightful analysis into key household sector issues so as to better inform economic analysis, as well as both monetary and macroprudential policies. In addition, the survey has been able to collect information on the public's overall trust in the ECB, their knowledge about the ECB's objectives and the channels through which they learn about its monetary policy and other central bank-related topics. The flexibility of the online platform has enabled the survey to be adapted in a timely manner to respond to topical issues, a prime example being the very timely provision of valuable information on households' behaviour during the COVID-19 crisis.

The pilot has also demonstrated that the CES is broadly representative of the population and other key structures across the euro area and the data are assessed to be of a statistical quality that is at least as high as other equivalent online surveys. The very positive experience with the survey during the pilot phase provides strong grounds to continue with the CES after the conclusion of its pilot phase. In particular, the pilot is assessed to have clearly demonstrated the CES's potential to deepen ECB and Eurosystem understanding of household sector decisions and expectations and contribute to timely policy analysis and address future analytical and research priorities. For example, the CES can contribute to a better understanding of monetary transmission to the household sector and to the enhancement of the effectiveness of communication strategies with the public. Furthermore, it will offer scope to examine developments in wealth and income inequality, the impact of climate change and climate risk mitigation policies on consumers as well as the adaptation to and effects of digitalisation and new financial technologies.

In addition to this exciting topical analytical and research agenda, a number of key improvements have been identified during the pilot phase that would further strengthen the robustness of the CES. In particular, the pilot points to some important challenges linked to the online nature of the survey and suggests the need to explore innovative ways to improve further the quality of the underlying data. This includes the need to better capture older and less well-educated respondents and to

optimise the employed sampling methods, sample size and country coverage with the aim of enhancing the CES's representativeness of the wider euro area population. As a result, an important priority during the next stage of development will be to optimise the total sample size to enable more granular analysis of specific groups as well as to enhance the CES data's overall statistical quality and representativeness by increasing the share of older and less well-educated respondents. Another priority will be to explore the potential to extend the country coverage to include additional euro area countries.

Finally, the pilot CES project has also benefited from regular interaction with experts from the national central banks of the EU, who have contributed to the evaluation and analysis of pilot CES data. Continued collaboration and coordination on the further development of the CES will help to ensure that the survey delivers on its potential over the longer term. In addition, while during the pilot phase access to the CES data has been limited to users from the ESCB, it is planned in the future to make key aggregate results available on the ECB's website and to make the anonymised micro data available also to external researchers and other data users.

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Appendix

A.1 Example CES questionnaires

A.1.1 CES sample monthly module

Variable C1010

First, we would like to ask you about changes in the general level of prices for goods and services in the country you currently live in.

Compared with 12 months ago, what do you think has happened to prices in general?

1	Prices went up a lot
2	Prices went down a lot
3	Prices went up a little
4	Prices went down a little
5	Prices stayed exactly the same (that is 0% change)

Variable C1020

How much higher (lower) do you think prices in general are now compared with 12 months ago in the country you currently live in? Please give your best guess of the change in percentage terms. You can provide a number up to one decimal place.

___._%

Variable C1110

The next few questions are about future changes in prices in general in the country you currently live in.

Looking ahead to 12 months from now, what do you think will happen to prices in general? We are interested in even very small changes.

1	Prices will increase a lot
2	Prices will decrease a lot
3	Prices will increase a little
4	Prices will decrease a little
5	Prices will be exactly the same (that is 0% change)

Variable C1120

How much higher (lower) do you think prices in general will be 12 months from now in the country you currently live in? Please give your best guess of the change in percentage terms. You can provide a number up to one decimal place.

___._%

In some of the following questions, we will ask you to think about the percent chance of something happening in the future. Your answers can range from 0 to 100, where 0 means there is absolutely no chance, and 100 means that it is absolutely certain.

For example, numbers like:

2 and 5 percent may indicate "almost no chance"

18 percent or so may mean "not much chance"

47 or 52 percent chance may be a "pretty even chance"

83 percent or so may mean a "very good chance"

95 or 98 percent chance may be "almost certain"

Variable C1150_1-8

Now, we would like you to think about how much prices in general in the country you currently live in are likely to change in 12 months from now. We realize that this question may take a little more effort.

Below you see 8 possible ways in which prices could change. Please distribute 100 points among them, to indicate how likely you think it is that each price change will happen. The sum of the points you allocate should total to 100.
You can allocate points by typing a percentage in each box. (Note that your answers should sum to 100 – if your sum exceeds 100, you should first decrease the points again in one option before you can add points in another).

percent chance points

1	Prices will increase by 8% or more	
2	Prices will increase by 4% or more, but less than 8%	
3	Prices will increase by 2% or more, but less than 4%	
4	Prices will increase by less than 2%	
5	Prices will decrease by less than 2%	
6	Prices will decrease by 2% or more, but less than 4%	
7	Prices will decrease by 4% or more, but less than 8%	
8	Prices will decrease by 8% or more	
	Total (the points should sum to 100)	100
-888	Skipped	

Variable C1210

Please think further ahead to <survey month year+2>. What do you think will happen to prices in general in the country you currently live in over the 12-month period <between survey month year+2 and survey month year+3>?

1	Prices will increase a lot
2	Prices will decrease a lot
3	Prices will increase a little
4	Prices will decrease a little
5	Prices will be exactly the same (that is 0% change)

Variable C1220

By about what percentage do you expect prices in general in the country you currently live in to increase (decrease) over the 12-month period <between survey month year+2 and survey month year+3>? Please give your best guess of the change in percentage terms. You can provide a number up to one decimal place.

___._%

Variable C2110

Next we would like you to think about the price of the home that you currently live in (even if you do not own it).

In 12 months from now, what do you expect will happen to the price of your current home? By this, we mean the price that would be paid if your home were to be sold 12 months from now. In 12 months from now, I expect the price of my current home, compared with now, to:

1	Increase a lot
2	Decrease a lot
3	Increase a little
4	Decrease a little
5	Stay exactly the same (that is 0% change)

Variable C2120

In 12 months from now, by about what percent do you expect the price of your current home to be higher (lower)? Please give your best guess of the expected change in percentage terms. You can provide a number up to one decimal place.

In 12 months from now, I expect the price of my current home to be ___._% higher (lower)?

Variable C2150_1-8

Below you see 8 possible ways in which the price of your current home could change over the next 12 months. Please distribute 100 points among them, to indicate how likely you think it is that each price change will happen. The sum of the points you allocate should total to 100.

You can allocate points by typing a percentage in each box. (Note that your answers should sum to 100 – if your sum exceeds 100, you should first decrease the points again in one option before you can add points in another).

percent chance points

1	Increase by 8% or more	
2	Increase by 4% or more, but less than 8%	
3	Increase by 2% or more, but less than 4%	
4	Increase by less than 2%	
5	Decrease by less than 2%	
6	Decrease by 2% or more, but less than 4%	
7	Decrease by 4% or more, but less than 8%	
8	Decrease by 8% or more	
	Total (the points should sum to 100)	100
-888	Skipped	

Next, we would like to ask you some questions about your household. By household we mean everyone who usually lives at your main place of residence (including yourself), that shares a common budget (that is, excluding flatmates and lodgers).

Variable C3010

Do you think your household is financially better off or worse off now than it was 12 months ago?

1	Much worse off
2	Somewhat worse off
3	About the same
4	Somewhat better off
5	Much better off

Variable C3110

And looking ahead, do you think your household will be financially better off or worse off in 12 months from now than it is today?

1	Much worse off
2	Somewhat worse off
3	About the same
4	Somewhat better off
5	Much better off

Variable C3210

Over the next 12 months, what do you expect will happen to your household's total net income (that is after tax and compulsory deductions)? During the next 12 months, I expect my household's total net income to...

1	Increase a lot
2	Decrease a lot
3	Increase a little
4	Decrease a little
5	Stay exactly the same (that is 0% change)

Variable C3220

By about what percent do you expect the total net income of your household to increase (decrease)? Please give your best guess of the expected change in percentage terms. You can provide a number up to one decimal place.

During the next 12 months, I expect the total net income of my household to increase (decrease) by ___._%

Variable C3250_1-8

Below you see 8 possible ways in which your household's total net income could change over the next 12 months. Please distribute 100 points among them, to indicate how likely you think it is that each income change will happen. The sum of the points you allocate should total to 100.

You can allocate points by typing a percentage in each box. (Note that your answers should sum to 100 – if your sum exceeds 100, you should first decrease the points again in one option before you can add points in another).

percent chance points

1	Increase by 8% or more	
2	Increase by 4% or more, but less than 8%	
3	Increase by 2% or more, but less than 4%	
4	Increase by less than 2%	
5	Decrease by less than 2%	
6	Decrease by 2% or more, but less than 4%	
7	Decrease by 4% or more, but less than 8%	
8	Decrease by 8% or more	
	Total (the points should sum to 100)	100
-888	Skipped	

Variable C4010

We are interested in your opinion on how well the economy of the country you currently live in will do in the future. During the next 12 months, I expect the economy of the country I currently live in to…

1	Grow
2	Shrink
3	Neither grow nor shrink

Variable C4020

During the next 12 months, by how much do you think the economy will grow (shrink)? Please give your best guess of the expected change in percentage terms. You can provide a number up to one decimal place.

During the next 12 months, I expect the economy to grow (shrink) by ___._%

Variable C4030

What do you think is the current unemployment rate in the country you currently live in?

___._%

Variable C4031

What do you think will be the unemployment rate 12 months from now in the country you currently live in?

___._%

Variable C4032

Is buying real estate in your neighbourhood today a good or a bad investment?

1	Very bad
2	Bad
3	Neither good nor bad
4	Good
5	Very good

Variable C5011

In 12 months from now, what do you think will be the interest rate on savings accounts in the country you are currently living in?

___._%

Variable C5111

In 12 months from now, what do you think will be the interest rate on mortgages in the country you are currently living in?

___._%

Variable C5211

In your view, which of the following would be best to happen in 12 months from now for the economy of the country you currently live in?

1	Interest rates go up
2	Interest rates go down
3	Interest rates remain the same
4	Interest rate movement would not make a difference

Variable C5221

In your view, which of the following would be best for your household to happen in 12 months from now?

1	Interest rates go up
2	Interest rates go down
3	Interest rates remain the same
4	Interest rate movement would not make a difference

In the next few questions, we would like to ask you about past and future spending of your household (that is, everyone who usually lives in your home that shares a common budget, including yourself, but excluding flatmates and lodgers). Please

think about your total household spending on goods and services, including groceries, clothing, personal care, housing (such as rent, mortgage payments, utilities, maintenance, home improvements), medical expenses (including health insurance), transportation, recreation and entertainment, education, and any other large items (such as home appliances, electronics, furniture, or car payments).

Variable C6010

We are interested in understanding how your household spending may have changed compared with 12 months ago. Even very small changes in the amount your household has spent are of interest.

Compared with 12 months ago, what do you think has happened to your household spending?

1	My household spending increased a lot
2	My household spending decreased a lot
3	My household spending increased a little
4	My household spending decreased a little
5	My household spending remained exactly the same (that is 0% change)

Variable C6020

How much higher (lower) do you think your household spending is now compared with 12 months ago? Please give your best guess of the change in percentage terms. You can provide a number up to one decimal place.

___._%

-999	Do not know

Variable C6030 [If C6020 = -999]

Please estimate how much higher (lower) (in percent) your monthly household spending on all goods and services is now compared with 12 months ago, using the categories listed below.

1	Less than 2%
2	2-3%
3	4-6%
4	7-10%
5	11-15%
6	16-20%
7	More than 20%

Variable C6110

During the next 12 months, how do you expect your household spending on all goods and services to compare with your spending in the past 12 months? Even very small changes in the amount your household will spend are of interest.

1	My household spending will increase a lot
2	My household spending will decrease a lot
3	My household spending will increase a little
4	My household spending will decrease a little
5	My household spending will remain exactly the same (that is 0% change)

Variable C6120

By what percent do you expect your household spending on all goods and services to change during the next 12 months compared with your spending in the past 12 months? Even very small changes in the amount your household will spend are of interest. Please give your best guess of the change in percentage terms.

___._%

-999	Do not know

Variable C6130 [If C6120 = -999]

Please estimate how much higher (lower) (in percent) you expect your monthly household spending on all goods and services to be 12 months from now using the categories listed below.

1	Less than 2%
2	2-3%
3	4-6%
4	7-10%
5	11-15%
6	16-20%
7	More than 20%

Variable C6210_1-7

Which of the following have you purchased in the past 30 days? Please select all that apply.

1	A house/apartment
2	A car or other vehicle
3	A home appliance, furniture or electronic items (incl. gadgets)
4	A holiday
5	Luxury items, including jewellery and watches
6	Other major item, not listed above
7	None of the above

Variable C6220_1-7

Which of the following do you plan to purchase in the next 12 months? Please select all that apply.

1	A house/apartment
2	A car or other vehicle
3	A home appliance, furniture or electronic items (incl. gadgets)
4	A holiday
5	Luxury items, including jewellery and watches
6	Other major item, not listed above
7	None of the above

Variable C7010

Please think about your available financial resources, including access to credit, savings, loans from relatives or friends, etc. Suppose that you had to make an unexpected payment equal to one month of your household income. Would you have sufficient financial resources to pay for the entire amount?

0	Yes
1	No

Variable C7111

Compared with your household's situation 12 months ago, do you think it is generally harder or easier these days for your household to obtain credit or loans (including credit and retail cards, car loans, student loans, and mortgages)?

1	Much harder
2	Somewhat harder
3	Equally easy/hard
4	Somewhat easier
5	Much easier

Variable C7121

And looking ahead, do you think that 12 months from now it will generally be harder or easier for your household to obtain credit or loans (including credit and retail cards, car loans, student loans, and mortgages) than it is these days?

1	Much harder
2	Somewhat harder
3	Equally easy/hard
4	Somewhat easier
5	Much easier

Variable C8010_1-4

How much do you trust each of the following institutions and organisations?

Please rate your level of trust on a scale from 0 to 10, where 0 means you have no trust at all in the institution and 10 means you trust it completely.

1	The European Central Bank
2	The European Commission
3	The European Parliament
4	The United Nations

0	0 – No trust at all
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10 – Trust completely
-999	Do not know

Variable C9010_1-4

How concerned are you about the impact of the coronavirus (COVID-19) on each of the following:

1	Your country's economic situation
2	Your own health or the health of the members of your household
3	The financial situation of your household
4	The situation of the world economy

0	0 – Not concerned at all
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10 – Extremely concerned
-999	Do not know

Variable C9020_1-4

In the last month, have you changed your behaviour in any of the following areas because of concerns about the coronavirus (COVID-19)?

(1 = Increase; 2 = Decrease; 0 = No change)

1	Social activities
2	Travel
3	The number of hours you work per week
4	Overall spending on goods and services

Variable C9030_1-4

In the next 3 months, do you expect to change your behaviour in any of the following areas because of concerns about the coronavirus (COVID-19)?

(1 = Increase; 2 = Decrease; 0 = No change)

1	Social activities
2	Travel
3	The number of hours you work per week
4	Overall spending on goods and services

Variable C9050

Governments are taking financial support measures in response to the coronavirus (COVID-19) outbreak. How do you rate the adequacy of these measures for your household's financial situation?

0	0 – Very poor
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10 – Very good

Variable: C0011

How difficult was it for you to understand and answer the questions in this survey?

1	Not at all difficult
2	Slightly difficult
3	Moderately difficult
4	Very difficult

A.1.2 CES October 2020 quarterly module

Variable: Q1010_1-12 and Q1010_21-32

During <last month>, how much did your household spend on the goods and services listed below?

		Amount spent last month	No money spent last month
1	Food, beverages, groceries, tobacco	€__	[tick box]
2	Restaurants (including take-out food, delivery), cafes/canteens	€__	[tick box]
3	Housing (including rent, maintenance/repair costs, home owner/renter insurance, but excluding mortgage payments)	€__	[tick box]
4	Utilities (including water, sewer, electricity, gas, heating oil, phone, cable, internet)	€__	[tick box]
5	Furnishings (furniture, carpets), household equipment (textiles, appliances, garden tools), small appliances and routine maintenance of the house (cleaning, gardening)	€__	[tick box]
6	Debt repayments (instalments in mortgage, consumer loans, auto loans, credit cards, student loans, other loans)	€__	[tick box]
7	Clothing, footwear	€__	[tick box]
8	Health (health insurance, medical products and appliances, dental and paramedical services, hospital services, prescription and non-prescription medication, personal care products and services)	€__	[tick box]
9	Transport (fuel, car maintenance, public transportation fares)	€__	[tick box]
10	Travel, recreation, entertainment and culture (holidays, theatre/ movie tickets, club/ gym membership, newspapers, books, hobbies equipment)	€__	[tick box]
11	Childcare and education (including tuition fees for child and adult education, costs of after school activities, care of children/ babysitting, but excluding instalments on student loans)	€__	[tick box]
12	Other expenditures not mentioned above	€__	[tick box]

According to your entries, your household's spending on the described items and services over the last month was:

Below is a summary of your entries. If you would like to make any changes to your entries, you can change the amounts in the table below. Once you are satisfied with your entries, please click 'Continue'.

€ ___.

		Amount spent last month
21	Food, beverages, groceries, tobacco	€__
22	Restaurants (including take-out food, delivery), cafes/ canteens	€__
23	Housing (including rent, maintenance/repair costs, home owner/renter insurance, housekeeping and cleaning service, but excluding mortgage payments)	€__
24	Utilities (including water, sewer, electricity, gas, heating oil, phone, cable, internet)	€__
25	Furnishings (furniture, carpets), household equipment (textiles, appliances, garden tools), small appliances and routine maintenance of the house (cleaning, gardening)	€__
26	Debt repayments (instalments in mortgage, consumer loans, auto loans, credit cards, student loans, other loans)	€__
27	Clothing, footwear	€__
28	Health (health insurance, medical products and appliances, dental and paramedical services, hospital services, prescription and non-prescription medication, personal care products and services)	€__
29	Transport (fuel, car maintenance, public transportation fares)	€__
30	Travel, recreation, entertainment and culture (holidays, theatre/ movie tickets, club/ gym membership, newspapers, books, hobbies equipment)	€__
31	Childcare and education (including tuition fees for child and adult education, costs of after school activities, care of children/ babysitting, but excluding instalments on student loans)	€__
32	Other expenditures not mentioned above	€__
	Total:	€__####

The next few questions regard household savings. As usual, any information you give us is treated confidentially.

Variable: Q1111

Households save in various ways (by depositing money in a bank account, or by buying financial assets, property, or other assets) and for different reasons. How much money (if any) has your household saved in the last 3 months?

1	€0
2	€1-€199
3	€200-€499
4	€500-€999
5	€1,000-€1,999
6	€2,000-€3,999
7	€4,000-€5,999
8	€6,000-€9,999
9	€10,000-€19,999
10	€20,000-€29,999
11	More than €30,000

Variable: Q1150

Does your household plan to save money in the next 12 months?

1	Yes, definitely
2	Yes, probably
3	Probably not
4	Definitely not
-666	Prefer not to answer
-999	Don't know

Variable: Q1161

Households save for different reasons. One reason is to be ready for unexpected events, such as job loss, big repairs, or illness. Whether or not you currently put money aside, what do you think would be the total amount of savings that your household needs to deal with such unexpected events?

€_____

Variable: Q1201_1-2

Please think ahead about your household spending on all goods and services over the next 12 months.

Suffix	Question Wording	
1	What do you expect to be the lowest amount that your household will spend in a typical month?	€_____
2	What do you expect to be the highest amount that your household will spend in a typical month?	€_____

Variable: Q1201_3

What do you think is the percent chance that the amount of your household spending in a typical month will be greater than €_____?

Variable: Q5011

What do you think is the percent chance that 12 months from now, stocks traded in your country, such as those traded on <name of stock exchange> will be worth more than they are now?

_____%

Variable: Q5020

Which of the following best reflects what you were thinking when answering <x%> to the previous question:

1	I think that <x%> is a relatively good estimate and I'm pretty sure it's right
2	I think that <x%> is a relatively good estimate but I'm not quite sure it's right
3	I was unsure about the chance
4	No one can really know about the chance

Variable: Q2021

What best describes your current employment situation?

1	Working full-time (self-employed or working for someone else)
2	Working part-time (self-employed or working for someone else)
3	Temporarily laid-off (you expect to return to your previous workplace)
4	On extended leave (disability, sick, maternity or other leave)
5	Unemployed and actively looking for a job
6	Unemployed, interested in having a job but not actively looking for a job
7	Unable to work because of disability or other medical reasons
8	In retirement or early retirement
9	Studying, at school, or in training
10	Looking after children or other persons, doing housework
11	Other

Variable: Q2400 [If Q2021=1 or Q2021=2 or Q2021=8]
Roughly speaking, what was your total personal net income (that is, after tax and compulsory deductions) over the past 12 months?

1	Less than €5,000
2	€5,000-€9,999
3	€10,000-€14,999
4	€15,000-€19,999
5	€20,000-€24,999
6	€25,000-€29,999
7	€30,000-€39,999
8	€40,000-€49,999
9	€50,000-€59,999
10	€60,000-€74,999
11	€75,000 or more

Notes: Please refer to the sum of all of your personal net income received over the past 12 months.
Please include income from regular wages or salaries or self-employment, as well as any overtime pay, tips, bonuses, profit sharing benefits (unless part of the pension arrangements).
if Q2021=8, show:
Roughly speaking, what was your total net personal pension income (that is, after tax and compulsory deductions) over the past 12 months?
Please refer to the sum of all of your personal pension income received over the past 12 months.
Please include any income received from public pensions, private pensions and/ or occupational pension plans/insurance contracts.

Variable: Q2101 [if Q2021=1 or Q2021=2 or Q2021=3 or Q2021=4]
How satisfied would you say you are with the salary and compensation package in your current job?

1	Very dissatisfied
2	Somewhat dissatisfied
3	Neither satisfied nor dissatisfied
4	Somewhat satisfied
5	Very satisfied

Variable: Q2111 [if Q2021=1 or Q2021=2 or Q2021=3 or Q2021=4]
On a scale from 1 to 7, how well do you think this job fits your experience and skills?

1	1 – Very poor fit
2	2
3	3
4	4
5	5
6	6
7	7 – Very good fit

Variable: Q2121 [if Q2021=1 or Q2021=2 or Q2021=3 or Q2021=4]
How long have you been working for your current employer?

1	Less than a month
2	More than a month but less than 3 months
3	More than 3 months but less than a year
4	More than a year but less than 3 years
5	More than 3 years but less than 5 years
6	More than 5 years but less than 10 years
7	More than 10 years

Variable: Q2252 [if Q2021 =9 or Q2021=10 or Q2021=11 or Q2021=1 or Q2021=2]
Are you currently actively looking for a job?

1	Yes
0	No

Variable: Q2262_1-8 [if Q2252 = 0 and (Q2021=9 or Q2021=10 or Q2021=11)]
What are the reasons why you are not looking for a job?

1	I am waiting for the results of an application for a job
2	I am a student or in training
3	Looking after family/home
4	Temporarily sick or injured
5	I believe that there are no suitable jobs available
6	I haven't started looking yet
7	I don't need employment
8	Other

Variable: Q2272 [if Q2252 = 1]
How many job applications have you submitted in the last 3 months?

1	1
2	2-5
3	6-10
4	More than 10
-777	I did not submit any applications

Variable: Q2302 [If Q2021=5 or Q2021=6]
Please think about the types of job that may be available to you. What do you think is the percent chance that, within the coming 3 months, you will find a job that you will accept?

__%

Variable: Q2352 [if Q2021=1 or Q2021=2 or Q2021=3 or Q2021=4]
What do you think is the percent chance that you will lose your current job during the next 3 months?

__%

Variable: Q2392 [If Q2252 = 0 or Q2021=1 or Q2021=2 or Q2021=3 or Q2021=4]
What do you think is the percent chance that within the coming 3 months, you will start looking for a job (a new job)?

__%

Variable: Q4011_1-9
During the last 3 months, has your household applied for any of the following?

1	A mortgage to purchase a house or other real estate or a housing loan for home renovation
2	A loan to purchase a car, motorbike or other vehicle
3	Another type of consumer loan or instalment debt
4	A leasing contract (e.g. on a car)
5	A credit card or an account with an overdraft facility with a financial institution
6	A loan for education purposes
7	An increase in the limit of an existing loan
8	Refinancing of your current mortgage
9	No, did not apply for any of the above

Variable: Q4031 [if at least one item in Q4011_1 – Q4011_8 is “yes”]
You said that your household applied for a loan, mortgage or a change to a loan/credit limit in the past three months.

If only one option in Q4010 is “yes” show: Is the outcome of this application known?
If more than one option in Q4010 is “yes” show: Thinking about your most recent application, is the outcome of this application known?

1	Yes
0	No

Variable: Q4041 [Q4030=1]

If only one option in Q4010 is "yes" show: We would also like to know if this application was granted?
If more than one option in Q4010 is "yes" show: Still thinking about your most recent application, was this application granted?

1	Yes, the full amount applied for was granted
2	Yes, but only part of the amount applied for was granted
3	No, my application was rejected

Variable: Q4050_1-8

We would like to once again reassure you that any information you give us will be treated confidentially.

Over the next 12 months, how likely do you think it is it that your household will apply for any of the following?

(1 = Very unlikely; 2=Rather unlikely; 3=Rather likely; 4= Very likely)

1	A mortgage to purchase a house or other real estate or a housing loan for home renovation
2	A loan to purchase a car, motorbike or other vehicle
3	Another type of consumer loan or instalment debt
4	A leasing contract (e.g. on a car)
5	A credit card or an account with an overdraft facility with a financial institution
6	A loan for education purposes
7	An increase in the limit of any existing loan
8	Refinancing of your current mortgage

Variable: Q4201_1-4

Over the past 12 months, to the best of your knowledge, was your household more than 90 days late with any of the following payments on at least one occasion?

(for each item [1 = Yes; 0 = No])

1	Rent
2	Mortgage
3	Other loans
4	Utility bills

Variable: Q4251_1-4

Looking ahead over the next 3 months, do you expect that your household is likely to have difficulty making any of the following payments on time?

(for each item [1 = Yes; 0 = No])

1	Rent
2	Mortgage
3	Other loans
4	Utility bills

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