



Co-funded by
the European Union

ESSnet Smart Surveys

Grant Agreement Number: 899365 - 2019-DE-SmartStat

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Workpackage 2 Smart Survey Pilots

Deliverable 2.3: Respondent engagement through personalized feedback and in-app editing

Version 1.0, 27-05-2022

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SUMMARY: WP2 performs four diverse pilots to inform WP3 on the specifications of a smart survey platform in the European Statistical System (ESS). A complicated but important trade-off is respondent engagement and respondent involvement in collecting new forms of data. In subproject WP2.1, Consumption, this trade-off has been empirically evaluated through a field test with the Household Budget Survey app. Two experimental conditions were added: instant or delayed personalized feedback and yes/no option to edit in-app receipt scan product extraction. This deliverable reports the impact of both design choices on recruitment, in-app activity and HBS data quality.

1. INTRODUCTION

ESSnet Smart Surveys evaluates the design and utility of smart surveys in official statistics in the context of the European Statistical System (ESS). In particular, it considers design options to involve and engage persons throughout the ESS. Effective respondent recruitment and motivation strategies are paramount in obtaining representative response and high measurement quality. And it is only with both good representation and measurement that the business case for smart surveys will be positive, having in mind that investments are needed to implement smart surveys. The introduction of smart features is, thus, especially promising in surveys that are subject to considerable respondent burden and/or measurement and recall errors. This deliverable investigates the impact of user interface design choices on respondent engagement.

There is a vast set of literature that demonstrates that respondent willingness is by no means guaranteed in surveys (De Leeuw, Hox & Luiten 2018). However, apart from reduction of respondent burden, smart features hold the promise of an improved user experience. Respondent interaction during data collection and feedback of personalized statistics both may increase motivation, trustworthiness and utility of smart surveys. For this reason, various experimental conditions have been added to a large-scale field test in ES, LU and NL employing the Household Budget Survey app described in deliverables 2.8 and 2.9.

The application to the Household Budget Survey (HBS) is no coincidence. The HBS is considered a burdensome survey and respondent assistance may be of great value. Such assistance is offered through receipt scan data entry and automated processing of receipt texts to the formal COICOP classification. This option offers respondents an alternative to manual data entry. Furthermore, respondents are oblivious of the COICOP categories, so that classification routines may remove the need to involve them. In HBS implementations where respondents can submit paper receipts by postal mail, burden reduction is, however, modest or even absent. In this setting, the burden reduction is at the side of the NSI. Even so, letting respondents scan, check and edit increases their involvement and may positively affect their engagement. Randomizing the amount of interaction, i.e. only scanning versus scanning plus editing, is, therefore, a relevant design choice.

A smart HBS may also offer an opportunity to engage respondents and improve their experience, namely through the provision of personalized feedback of statistics. This holds true relative to any current implementation of the HBS, but it is strongest for settings where respondents only send receipts by postal mail. In the latter setting, the HBS may be perceived as a one way endeavour with

little to gain for respondents. Randomizing in-app feedback of statistics, therefore, is another relevant design choice.

The main research questions of this deliverable are whether respondent engagement can be improved through a) offering the option to check and edit receipt scanning, and b) offering personalized feedback. But how can respondent engagement be evaluated? A relatively straightforward first step is to evaluate recruitment rates and, in particular, drop-out rates. But engagement is more than staying in a survey; it is also about measurement quality. The assessment of measurement quality is not straightforward as true values, in this case household expenditure profiles, are unknown. A partial solution is offered by paradata on in-app navigation behaviour. These paradata shed a light on screen times, visited pages, response latencies for certain respondent actions, consulted tutorials and so on. These kind of paradata are, however, new in survey literature and extraction of insightful features is research by itself. Another solution is a relative comparison of purchase data to a control group, i.e. a subsample that did not edit and/or did not get feedback. Improved engagement may be viewed as larger numbers of reported purchase, more diversity in purchase amounts and more diversity in types of purchases. The specific research questions in this deliverable, thus, are:

1. Does in-app editing reduce drop-out rates?
2. Does in-app editing improve number and diversity of purchases?
3. Does in-app feedback improve recruitment rates?
4. Does in-app feedback reduce drop-out rates?
5. Does in-app feedback improve number and diversity of purchases?

Based on the answers to these questions, recommendations are given for respondent-interaction. While these are dependent on the user interface and context of the Household Budget Survey app, these results should still be informative for other app-assisted HBS. Note that there is no research question on the impact of editing on recruitment rates. As households are not aware of the option to edit prior to starting the survey, this condition cannot impact recruitment. However, personalized feedback is made salient by recruitment material and by interviewers.

In this deliverable, there is no explicit attention for the role of interviewers. It can be conjectured that interviewers can convey the message of a more enjoyable and less burdensome survey. They can make survey features more salient by referring to their own experiences. Their role is investigated and evaluated explicitly in another deliverable, deliverable 2.4.

The outline of this deliverable is as follows: In section 2, the field test design is described. Section 3 discusses recruitment, activity, completion and data quality. In section 4, attention then first moves to personalized feedback as it may affect both recruitment and in-app behaviour. In section 5, next, in-app editing is researched. Section 6 ends with a summary and discussion.

2. DESIGN OF THE HBS FIELD TEST

The field test design is first elaborated. Next, the implementation of personalized feedback and in-app editing are explained, including screen shots of how these features were implemented. The section is ended with a description of available paradata on in-app navigation behaviour that will be employed to evaluate respondent behaviour.

2.1 GENERAL DESIGN

The field test employed the HBS app version 2.1.15 as described in deliverables 2.9 and 2.8a. It was available for ES, NL and LU. All data collection was done through the NL backend, but all app texts and app store descriptions were in local languages. See deliverable 2.11 for the shop and product lists that were included.

Detailed descriptions of the sampling design and data collection strategies are given in deliverable 2.1. Here, we merely describe the overall design and the how the experimental conditions were included. Table 1 gives an overview of planned and realized sample sizes per condition and country. In NL, 115 sampled households were ultimately not fielded to interviewers because of field and COVID-19 issues. In ES, 125 sample households were move to telephone towards the end of data collection for the same reasons. The changes did not affect the feedback condition as this condition was randomized within interviewer and non-interviewer samples.

Table 1: Sample sizes per country and experimental condition.

	ES	LU	NL
Feedback instant	Planned: 400 Realized: 433	Planned: 800 Realized: 882	Planned: 800 Realized: 748
Feedback delayed	Planned: 400 Realized: 433	Planned: 800 Realized: 884	Planned: 800 Realized: 737
Interviewer	Planned: 400 Realized: 433	Planned: 800 Realized: 881	Planned: 800 Realized: 685
No interviewer	Planned: 400 Realized: 433	Planned: 800 Realized: 884	Planned: 800 Realized: 800
In-app editing	Planned: 800 Realized: 866	-	Planned: 1200 Realized: 1085
No in-app editing	-	Planned: 1600 Realized: 1766	Planned: 400 Realized: 400

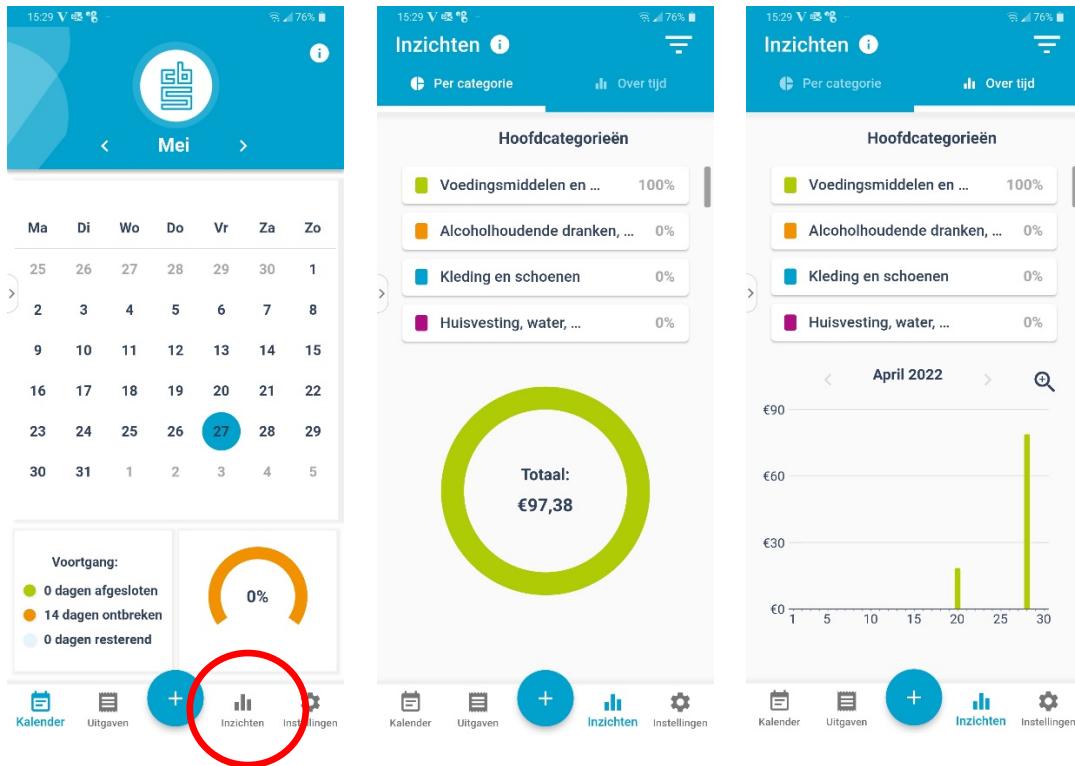
The in-app editing condition was only in part randomized, since it was not planned in the original design and was not enforced for other countries. In ES, in-app editing was always enabled, while in LU it was always disabled. In NL, in-app editing was enabled for the interviewer sample and randomized for the non-interviewer sample. The choice not to randomize within the interviewer sample was made in order to not confuse interviewers when interacting with households. While not randomized within countries, the total samples with and without in-app editing were equal size.

2.2 FEEDBACK

Personalized feedback is implemented as a separate screen in the app. It has two sub-screens, one showing a chart on the distribution of purchases across COICOP categories and one showing the purchase amounts in time. Both charts are clickable so that zooming in is possible. Personalized feedback is a configurable design feature of the HBS app user interface. It can be provided instantly but also with a configurable delay in days. For the HBS field test, feedback was delayed until the last

day for the sample without an explicit focus on feedback. This half-sample was presented only a so-called empty state, i.e. the feedback screen was blank with a faded text. The empty state thus give away that feedback may be possible, but not what it will look like. The other half-sample received feedback instantly. Figure 1 gives screen shots of the main screen and sub-screens.

Figure 1: Main HBS screen and feedback screens.



Feedback is made salient to sampled households through the invitation letter and accompanying brochure. Annex A provides pictures of the recruitment material in ES, LU and NL.

In the interviewer samples, recruitment material was the same as in the non-interviewer samples. Interviewers were made aware of the option through their household workload files. It was, however, left to them to make this feature more salient in recruitment at the door. The main reason to leave this open was that households may have a variety of reasons and arguments for response or refusal. Households that are directly motivated to participate would not need extra motivation, while households that claim to have no time demand other refusal conversion arguments. For this reason, it is conjectured that feedback may have a stronger impact in non-interviewer samples. The field test samples are not large enough to investigate the interaction between interviewer-assistance and feedback with sufficient statistical power. Only simple descriptives of the impact of interviewer-assistance will, therefore, be given.

2.3 IN-APP EDITING

In-app editing of receipt product-price extraction also is a configurable option in the HBS app. When in-app editing is turned on, the app displays the products and prices recognized by the app and the respondent can edit products and prices. When in-app editing is disabled, a respondent does not see

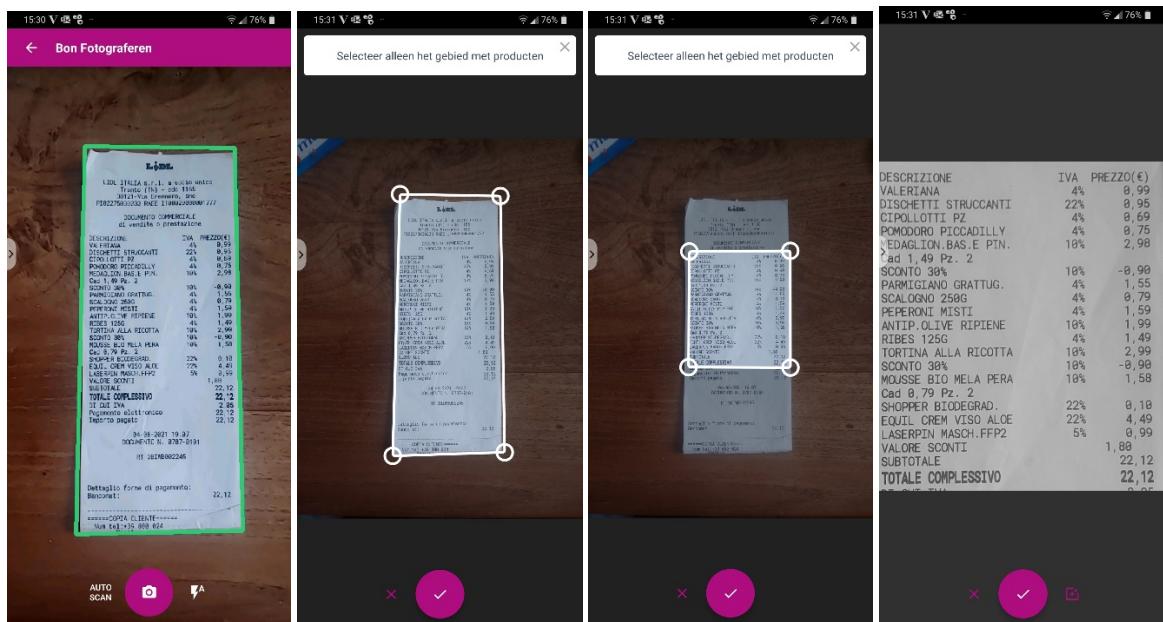
these results and can only confirm the receipt or retake the picture. Hence, also in the no-editing-option can respondents decide to improve receipt scan quality, but they can only do so through evaluating subjectively by looking at the visual presentation of the scanning result.

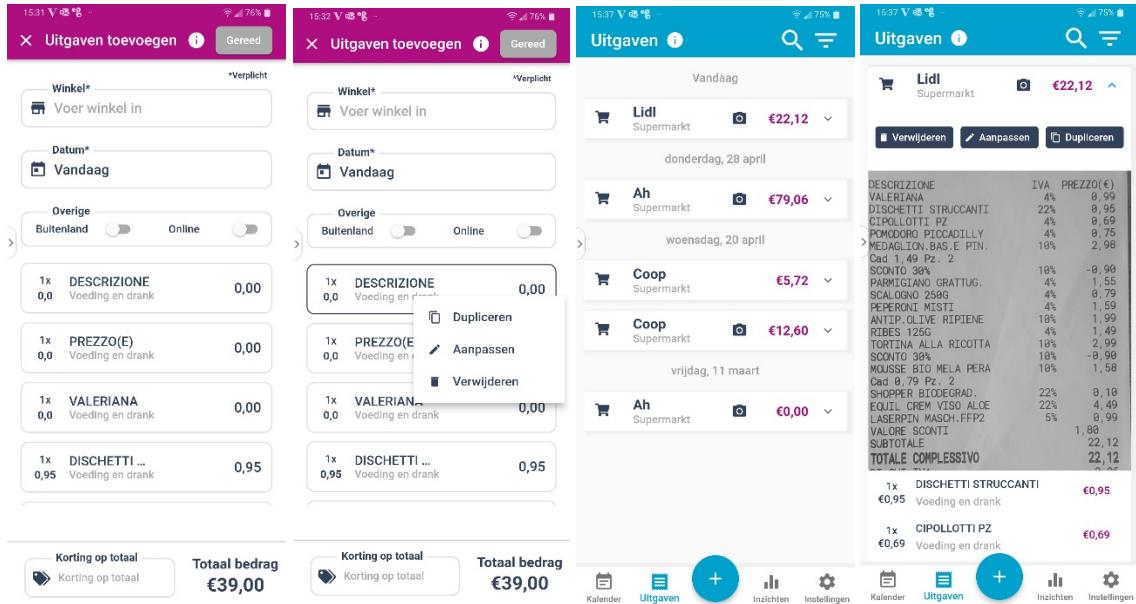
Receipt scan data entry consists of seven steps:

1. Choose the scan option in the calendar or purchase overview;
2. Check whether there are warnings whether contrast is too small and/or light too weak;
3. Wait for the automatic receipt detection to find the edges of the receipt;
4. If needed, crop the image to the section where products and prices are printed and confirm or retake the picture;
5. Add basic characteristics of the purchase: shop name/type, yes/no purchase abroad, yes/no purchase online and total amount;
6. If in-app editing is turned on: Wait for the app to display the products and prices recognized by the app;
7. If in-app editing is turned on: Edit products and prices and confirm;
8. If in-app editing is disabled: Confirm the receipt or retake the picture;

Some extra explanation of the steps is needed: The app scanning option displays warnings when light is weak or contrast on grey-scale is low (step 2). The respondent can ignore the warnings and move on to step 3. When scan circumstances are very weak, then edge detection (step 3) may not work properly and the respondent has to force taking a picture. The cropping of the image (step 4) is an influential step. It does not affect OCR as resolution stays the same, but it may ease the language processing. The in-app OCR and language processing (step 6) take around five to ten seconds depending on the number of lines. The in-app editing of results (step 7) follows the exact same screens and options as manual data entry, so that visual presentation is consistent and predictable. See for example deliverable 2.1. A receipt can be deleted or edited at any given time. Figure 2 shows the various steps from scanning to editing to storing a receipt scan.

Figure 2: Screenshots of the in-app scanning and editing process.





As mentioned above, in-app editing of receipts employs the exact same editing screen as for manual data entry. Respondents could remove spurious products, add missing products, add discounts or rebates and check the total amount computed automatically with the amount on the receipt and the amount provided to them. When editing products, again the product lists were enabled so that classification was applied. However, when a receipt product text was not edited and accepted, then no classification took place. Product classification was done in-house only and these results were not fed back to respondents. In case the in-app editing was turned on, both the receipt and the extracted, potentially edited, products remained available in the app. Both were also sent to the HBS backend (see also the last screenshot of figure 2).

2.4 IN-APP PARADATA

The in-app paradata is a log of all taps, scrolls and strikes made by respondents. It is a configurable option that starts logging once a respondent has registered the HBS app. The paradata does not log actual numbers or symbols typed by the respondent in order to avoid an overload of information and very sizeable paradata logfiles. Paradata logfiles are exported as CSV-files with four columns:

- The respondent username
- The label of the main screen and sub-screen, if applicable
- The label of the action performed
- The timestamp

Features derived from the paradata are the following:

- Number of active days
- Number of days with at least one reported purchase
- Form of data entry (manual or scan)
- Screen time overall and per day
- Number of screens visited overall and per day
- Response latency per screen action
- Duration of the HBS start questionnaire

- Stopping a tutorial prematurely
- Number of tutorials/help options consulted
- Type of data entry

The paradata features are used as covariates in predicting drop-out and household profiles.

3. RECRUITMENT, ACTIVITY, COMPLETION AND DATA QUALITY

In this section, definitions for various types of response rates are given as well as indicators for data quality. Both will be used in subsequent sections in which research questions are answered.

3.1 RECRUITMENT, ACTIVITY AND COMPLETION

Recruitment, activity and completion require explicit definitions.

The recruitment rate is defined as the proportion of eligible households that registered the app on at least one device and completed the introduction questionnaire (if applicable). For the interviewer-assisted recruitment, the causes for non-registration are detailed and are part of deliverable 2.4. For the self-administered recruitment, such an elaboration is not possible.

The activity rate is the proportion of eligible households that were recruited and showed at least one day of in-app purchase reporting.

The completion rate is defined as the proportion of eligible households that were recruited and have shown in-app activity until the final reporting day including at least one purchase.

The following household characteristics are available per country for the entire sample:

- ES
 - Age of all household members
 - Urbanization degree of the area of residence
 - Size of the household
 - Highest attained educational level of the household reference person in four classes
- LU
 - Household income
 - Age of the household reference person
 - Gender of the household reference person
 - Nationality of the household reference person
 - Highest attained educational level of the household reference person in three categories
 - Size of the household
- NL
 - Household income
 - Household total value of assets
 - Ownership of the house and registered house value
 - Urbanization degree of the area of residence
 - Type and size of household

- Age of the household reference person
- Gender of the household reference person
- Ethnicity of the household reference person
- Marital status of the household reference person
- Highest attained educational level in five categories

Unfortunately, the overlap in variables between the three countries is limited to household size/type and age. Educational level is available for all countries but definitions vary per country.

3.2 DATA QUALITY

Data quality has two dimensions, namely quantity and diversity. The first dimension corresponds to households being active throughout the data collection period, i.e. from day 1 to day 14 (LU and NL) or 7 (ES). The second dimension represents completeness, i.e. both small and larger expenditures and across all types of eligible purchases for HBS.

For data quality, four indicators are considered:

1. Total number of reported purchases;
2. Standard deviation of numbers of products per purchase;
3. Standard deviation of purchase amounts;
4. Number of different store types for which purchases have been reported;

The store types used in the third indicator closely resemble main COICOP categories. However, instead of looking at categories of individual products which may obviously vary within a single purchase, it was decided to look at purchases. The motivation for this is that households cluster products within purchases. This is especially true for scanning of receipts. A classification into 11 store types was chosen based on historic data. They are the following: petrol station, superstores/department stores, supermarkets, specialised food and drink stores (bakers, butchers, etc), clothing and shoes, perfumery/drug store, home interior, garden and house, lunching and dining, media and books, and all other types.

In order to study collinearity of the indicators, an exploratory study was done into household profiles through a cluster analysis. Details can be found in Akkermans (2022). Five clusters follow from standard selection criteria in cluster analysis. The five clusters are visually presented in figure 3 and labelled in table 1. Obviously, there is a relation between the three indicators. The more purchases are reported, the more variety will occur in both amounts and types. In fact, if respondents would participate indefinitely, then the number of different store types will converge to the maximum number of 11. Hence, the indicators cannot be evaluated independently of the length of the data collection. However, in all analyses, only relative comparisons are made between countries and between experimental conditions.

Figure 3: Visual presentation of the five household clusters based on the three indicators. Cluster 1 = pink, 2 = light blue, 3 = black, 4 = dark blue, 5 = yellow.

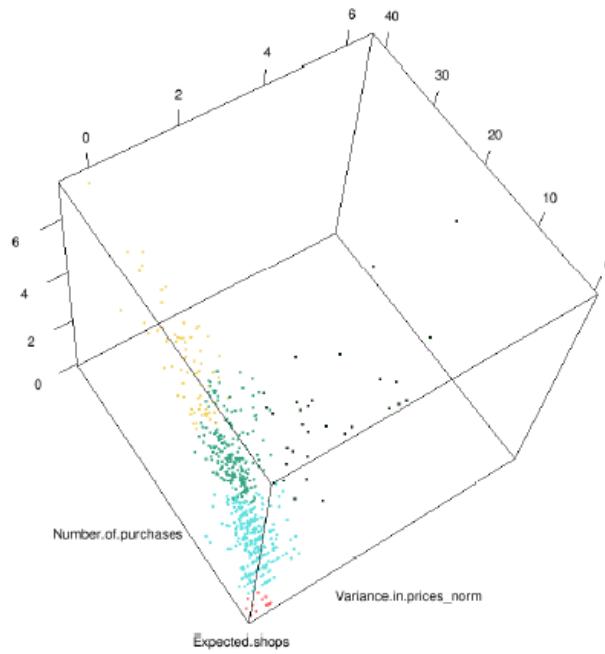


Table 1: Labels for the five data quality clusters.

Cluster	Label
1	Rare shoppers and low spenders
2	Infrequent shoppers and low spenders
3	Moderate shoppers and big spenders
4	Frequent shoppers but low spenders
5	Moderate shoppers and moderate spenders

4. PERSONALIZED FEEDBACK

This section concentrates on research questions 3 to 5 related to the impact of personalized feedback.

4.1 RECRUITMENT, ACTIVITY AND COMPLETION

This section concentrates on representation, i.e. recruitment , activity and completion. In deliverable 2.1, detailed results have been presented overall and per country. As noted there and in deliverable 2.4, the assistance of an interviewer increased recruitment, activity and completion rates considerably. Here, interviewer-assistance is not considered, but it must be noted that all rates presented are a mix of two samples, with and without interviewer-assistance. The interaction between personalized feedback and interviewer-assistance is not investigated, because statistical

power would be too low. Furthermore, the interaction is conjectured to be relatively weak as personalized feedback was only one of the arguments that interviewers could use.

Table 2 presents the various rates for all countries combined and per country. Also the regular Dutch HBS results for 2020 are added. The regular Dutch HBS has a sequential design where telephone interviewers contact households that did not respond to invitation letters.

Table 2: Registration, activity, and completion rates for the 2021 HBS

	Registered (%)	Active (%)	Complete (%)	Active/registered %	Complete/active %
2020 Web-based	16520 (20.9) [20.7, 21.2]	13483 (17.1) [16.8, 17.3]	10420 (13.2) [13.0, 13.4]	81.6 [81.0, 82.2]	77.3 [76.6, 78.0]
Combined	920 (23.5) [22.2, 24.8]	740 (18.9) [17.7, 20.1]	615 (15.7) [14.6, 16.9]	80.4 [77.9, 83.0]	83.1 [80.0, 86.2]
Netherlands	292 (20.3) [18.2, 22.3]	246 (17.1) [15.1, 19.0]	208 (14.4) [12.7, 16.2]	84.2 [80.0, 88.3]	84.6 [79.4, 89.5]
Luxembourg	475 (29.1) [26.9, 31.3]	360 (22.1) [20.0, 24.0]	294 (18.0) [16.2, 20.0]	75.8 [71.9, 79.6]	81.7 [77.2, 86.1]
Spain	153 (18.1) [15.5, 20.8]	134 (15.9) [13.5, 18.4]	113 (13.4) [11.2, 15.8]	87.6 [82.1, 92.6]	84.3 [77.1, 91.7]

Note. Bootstrapped CIs given in square brackets.

Table 3 shows the registration, activity and completion rates per country and experimental condition. Two observations emerge. The first is that the impact of personalized feedback varies greatly per country. In LU it has a positive impact, in NL a slightly negative impact and in ES a clear negative impact. These variations might be the result of different implementations in the three countries, i.e. how salient it was in invitation material and how interviewers dealt with it at the door. Even so, the results are puzzling. The second observation is that from registration to completion there is no impact at all in any of the countries. All conditional rates (active given registration and completion given activity) are virtually the same.

Table 3: Registration, activity, and completion rates with and without personalized feedback.

	Registered (%)	Active (%)	Complete (%)	Active/registered %	Complete/active %
NL with	19.2	16.3	13.7	85	84
without	21.3	17.8	15.1	84	85
LU with	30.9	23.1	18.8	75	81
without	27.3	21.1	17.1	77	81
ES with	15.8	14.6	11.8	92	81
without	20.9	17.8	15.1	91	82

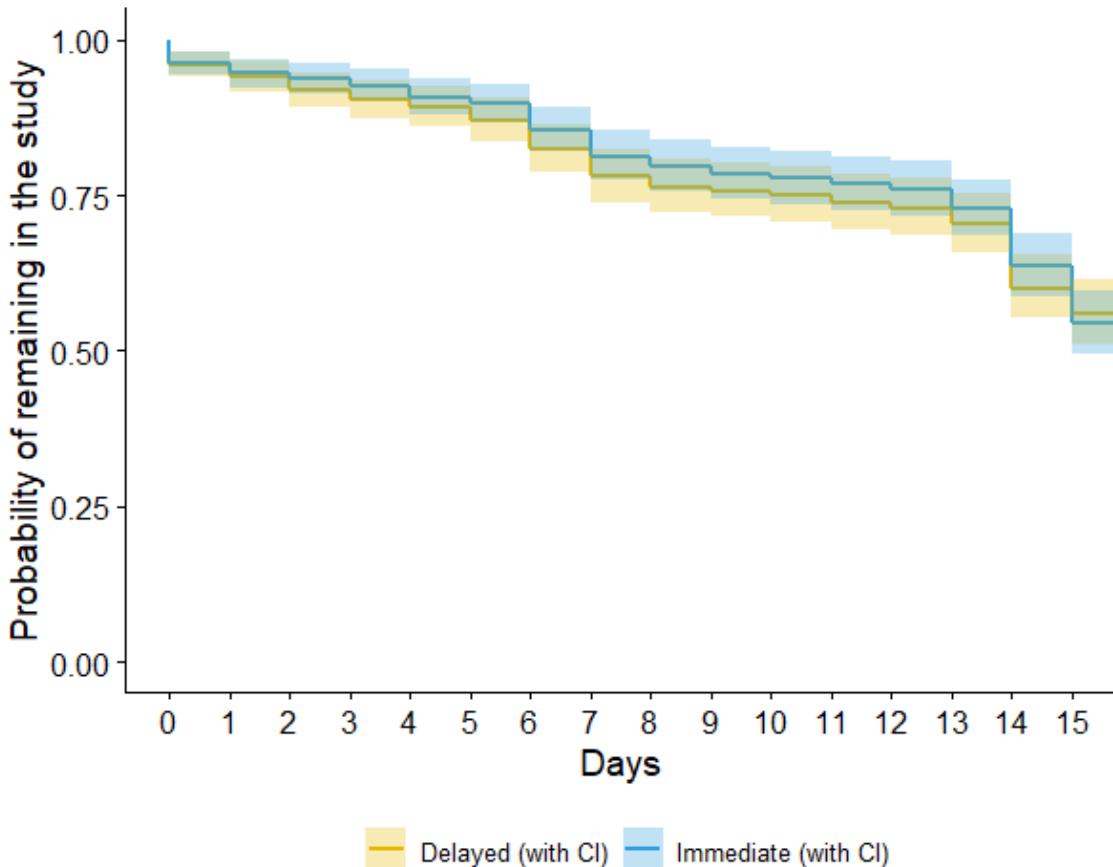
Table 4 depicts the results of testing independence between feedback and registration and between feedback and activity, respectively, for all countries combined. The registration rates differ by only 0.2 percent points and activity rates by 0.8 percent points. Both are in the direction opposite to the original hypotheses of a positive impact of feedback, but are far from statistical significance. The conclusion is that the field test experiment shows no impact of feedback on participation

Table 4: Difference in registration and activity between the personalized insights conditions

	Registered			Active		
	%	χ^2	P	%	χ^2	P
		0.09	.759		0.31	.579
Immediate	23.3 [21.4, 25.1]			18.5 [16.8, 20.3]		
Delayed	23.7 [21.8, 25.6]			19.3 [17.5, 21.1]		

Note. Bootstrapped CIs given in square brackets.

Figure 3. Kaplan-Meier survival curves for dropout in the personalized insights conditions.



In order to get a better sense of the role of personalized feedback during data collection, a survival analysis was performed with the number of active days as dependent variable. The survival analysis was adjusted for right-censoring as responding households were asked to stop after 14 days (in LU and NL) and seven days (in ES). Figure 3 displays the survival curves for the sample with immediate feedback and sample with delayed feedback. The survival curve with delayed feedback is lower than the one with immediate feedback after two to three days. It remains lower until the end of the reporting period. The difference is, however, not statistically significant. Table 5 gives the formal statistical test. It must be remarked that the survival curve runs until day 15. Most households stopped

at day 13, because they started reporting directly on day one. Some households installed the app and started reporting the next day. This explains the strong drop at the end of the curve.

Table 5: Log-rank test for difference in survival probabilities between the personalized insights conditions.

	Observed dropout (%)	Expected dropout ^a (%)	χ^2	P
			0.00	.988
Immediate	44.8 [39.8, 49.9]	44.8 [40.9, 48.8]		
Delayed	42.7 [37.7, 47.9]	42.8 [39.1, 46.5]		

Note. Bootstrapped CIs given in square brackets.

^a Expected dropout is the dropout that is expected if the null hypothesis is true, i.e. there is no difference in survival probability.

Summarizing, it can be concluded that personalized feedback did not strongly affect registration, activity and completion.

4.2 ACTIVITY AND DATA QUALITY

Next, the focus is on the measurement and data quality.

Data quality and measurement error have been studied in great length. It is well known that measurement error has two main causes: lack of motivation and incompetence/inability. The two factors interact; a complex survey task may reduce motivation. The two causes are moderated through the survey topics and the user interface design. Providing personalized feedback aims at increasing respondent motivation, but cannot affect respondent ability and competence. Consequently, feedback may improve data quality, but only through more motivated (and thus concentrated) respondents. Three analyses are performed:

- Comparing in-app behaviour for those with and without personalized feedback;
- Testing association between household profile and personalized feedback;
- Predicting yes/no feedback based on auxiliary variables and data quality indicators;

The first analysis concerns in-app behaviour. The paradata features that may be seen as proxies for more motivated respondents are number of active days in-app, amount of time spent in-app and relative number of manual entries. Through a Kruskal-Wallis test association between the three paradata features and feedback was tested. The resulting *p*-values were, respectively, 0.68, 043 and 0.89. The values are far away from standard confidence levels, indicating that no strong relation could be found.

The second analysis evaluates the relationship between household profile as assessed in section 3.2 and feedback. A Chi-square independence test was conducted between the two variables with a *p*-value of 0.30. So again no strong relation is found with personalized feedback.

Table 6: Logistic regression analyses to show the relationships between personalized insights and data quality

	Model 1			Model 2			Model 3			Model 4			Model 5		
	B	se	P												
Intercept	0.69	0.50	.168	0.79	0.52	.123	0.85	0.52	.100	0.90	0.53	.090	-0.92	0.53	.086
Age (ref = 18-24)															
25-34	-0.80	0.53	.129	-0.93	0.54	.085	-0.94	0.54	.082	-0.92	0.54	.088	-0.92	0.54	.088
35-44	-0.88	0.52	.088	-0.94	0.53	.077	-0.93	0.53	.079	-0.91	0.53	.087	-0.92	0.53	.084
45-54	-0.77	0.52	.141	-0.79	0.54	.141	-0.79	0.53	.140	-0.78	0.53	.143	-0.80	0.54	.137
55-64	-0.98	0.53	.065	-1.10	0.54	.042	-1.10	0.54	.043	-1.08	0.55	.049	-1.09	0.55	.047
65-74	-1.05	0.56	.062	-0.92	0.58	.110	-0.91	0.58	.113	-0.89	0.58	.121	-0.90	0.58	.120
≥75	-0.94	0.63	.134	-1.00	0.65	.127	-0.99	0.65	.131	-0.98	0.65	.136	-0.99	0.66	.130
Household size (ref = 1 person)															
2 persons	0.45	0.21	.036	0.60	0.23	.009	0.60	0.23	.009	0.61	0.23	.008	0.61	0.23	.008
3 persons	0.09	0.23	.685	0.17	0.24	.470	0.19	0.24	.436	0.20	0.24	.413	0.20	0.24	.419
4 or more persons	0.01	0.22	.967	0.09	0.23	.709	0.10	0.23	.681	0.11	0.24	.635	0.11	0.24	.638
Quality indicators															
Amount SD				-0.10	0.05	.057	-0.10	0.05	.057	-0.10	0.05	.066	-0.10	0.05	.066
Products SD							-0.05	0.06	.357	-0.05	0.06	.351	-0.05	0.06	.363
Store types										-0.02	0.05	.686	-0.04	0.06	.539
Entries													0.01	0.01	.640
Model AIC	1033.1			928.1			929.22			931.1			932.8		
Log-likelihood	-506.54			-453.04			-452.61			-452.53			-452.42		

Note. Significant p values ($p < .050$) marked in bold.

The third analysis is a logistic regression of the 0-1 binary indicator with personalized feedback as dependent variable and the data quality indicators and auxiliary variables as independent variables. In other words, it is attempted to predict feedback from data quality indicators. Since there is a potential confounding of selection and measurement when feedback is provided, also a few main auxiliary variables are added. The results from section 4.1 do not hint at any difference in selection when feedback is offered. Nonetheless, it cannot be ruled out. Table 6 displays the estimated regression coefficients for five models:

The first model is a model with auxiliary variables only. Here a few coefficients turn out to be significant at the 5% level, but there is no clear pattern.

The second to fifth model add quality indicators one at a time based on their improvement of model fit following from AIC (Akaike Information Criterion). The strongest data quality indicator is the variation in amounts within households. The more variation the more likely that feedback was provided. The corresponding *p*-value of 0.057 is just above the regular 5% level. The other indicators add but little to the model performance and none of the coefficients is close to significance.

Summarizing, also for data quality there is little that points at an impact of [personalized feedback]. Given the results in section 4.1 on representation, this may not be surprising, but it is a disappointing finding nevertheless. There is weak evidence that providing feedback leads to more variation in purchase amounts. This finding should be replicated in another study.

5. IN-APP EDITING

This section focusses on the research questions 1 and 2 related to in-app editing. Because in-app editing was not randomized within ES and LU samples, the analysis is (for now) restricted to NL data. However, based on evaluation of NL results hypotheses on the impact in ES and LU will be formed and tested.

Table 7 shows the numbers of NL responding households in both conditions overall and restricted to those that made scans. Numbers are relatively small.

Table 7: Number of NL active households with/without editing option.

	Editing enabled	Editing disabled
All households	196	50
Households with ≥ 1 scan	125	31

5.1 IN-APP EDITING AND IN-APP REPORTING BEHAVIOUR

In this subsection, a comparison is made between respondents with and without edition option in terms of reported data. The data quality indicators related to numbers of receipts (entered manually or scanned), numbers of purchased products and amounts paid by households are evaluated. A distinction is made between active households (i.e. submitting at least one purchase) and scanning households (i.e. scanning at least one receipt). This distinction is made, because if respondents do not scan at least one receipts they do not discover whether they can edit or not. It is thus most interesting

to look at the results of the scanning households. However, it turns out that the observed patterns for both types of households are (almost) similar.

Table 8 gives the average total numbers of purchases by households and the average numbers submitted manually and by scan for the two editing groups. This comparison is relevant, because respondents in the editing condition may think editing is too much work and as a result submit less scans. The number of purchases for the in-app editing group is higher than for the no-in app editing group. This difference may explained by the higher number of manual entered purchases in the in-app editing group. There is no difference in the number of scanned receipts.

Table 8: Household average total number of purchases, average number of manually entered purchases and average number of scanned receipts for NL. A distinction is made between active households, and household who scanned at least one receipt.

	In-app editing		No in-app editing	
	Mean (SD)		Mean (SD)	
	Active	Scanned	Active	Scanned
Total	20.8 (11.8)	20.4 (12.9)	15.8 (11.1)	16.3 (11.4)
Scans	4.8 (6.3)	7.6 (6.4)	4.4 (6.8)	7.2 (7.4)
Manual	16.0 (13.1)	12.8 (11.0)	11.3 (10.1)	9.1 (8.2)

Table 9: Household mean total amounts and purchase amount in Euros, and total numbers of products and purchase number of products for NL. A distinction is made between active households, and household who scanned at least one receipt.

	In-app editing		No in-app editing	
	Mean (SD)		Mean (SD)	
	Active	Scanned	Active	Scanned
Total amount	684	710	534	556
Purchase amount	34	35	32	33
# products	98.5	122.9	66.6	74.8
# products per purchase	5.8	7.2	4.5	4.8

Table 9 gives the average total numbers of products and amount of purchases by households and the average number of products and amount per purchase for the two editing groups. Respondents in the in-app editing group have a higher total amount and number of products, which may be explained by the higher number or purchases in this group. There is no large difference in the amount of number of products per purchase.

5.2 IN-APP EDITING AND COMPLETION

In-app editing may impact completion rates. While the scanning option itself reduces burden, asking respondents to check and edit text extraction results re-introduces burden.

Table 10 provides the activity, scanning and completion rates in the two conditions. There are no real differences between the two conditions. Respondents who do cannot edit thus do not break-off more often than respondents who can edit. There seems to be no direct impact of in-app editing on completion rates.

Table 10: Activity, scanning and completion rates for NL. A distinction is made between respondents with and without in-app editing.

	In-app editing enabled Percentage (n)	In-app editing disabled Percentage (n)
Activity	100% (196)	100% (50)
Made ≥1 scan	64% (125)	62% (31)
Completion	54% (106)	52% (26)

5.3 DATA QUALITY

In this part, the scanned receipts are considered in order to investigate whether respondents edit, what they edit and whether that increases data quality. More specifically, the number of products and amount per receipts is evaluated.

A total of 1185 receipts was submitted by NL households. All 1185 receipts were manually evaluated on scan and receipt quality, and on completeness. Furthermore, numbers of products and total amounts were derived, unless a receipt was incomplete. Out of these receipts, a selection of 280 receipts was made. These receipts concerned supermarkets only and excluded online purchases. The 280 receipts were manually coded for individual product texts and prices. A detailed account is provided in deliverable 3.3 of ESTAT-funded project @HBS2.

For the subsample of 280 receipts, three different versions of the same receipt were available:

- Product-price pairs extracted in-app: The results submitted to the backend by the respondent. The in-app edit option implied that, if the respondent did edit, only the edited data was submitted to the backend. If the respondent did not edit, then the in-app product-price pairs were submitted unchanged to the backend.
- Product-price pairs extracted in-house: The results derived by the in-house OCR and language processing routines. All scanned receipts were submitted to the backend, regardless of in-app editing, so afterwards in-house processing could be applied to all receipts.
- Manually product-price pairs: The manually coded product-prices are seen as ‘the truth’.

Both in-app and in-house prices of products were set to zero by default when either no price could be found or when OCR performance was too weak. If no price can be found, then in the majority of cases it concerns a spurious line with a product. When in-app editing was enabled, then respondents should remove these lines. If indeed a line contains a product, but OCR performance is too weak, then the

respondent should correct the zero and insert the true price. Zero amounts, thus, provide an easy check whether respondents did conform to their task.

5.3.1 DESCRIPTIVES ON IN-APP EDITING OF RECEIPTS

First, differences relative to the true values are computed and compared. Table 11 gives the differences in (absolute) total amounts and (absolute) numbers of products. Also provided are the number of zero amounts. The difference in total amounts and numbers of products, relative to the coded receipts, are direct indications of editing behaviour. If the differences in the in-app results are smaller than in-house results, then this indicates that the respondent has edited the amount or number of products. The number of zero amounts is an indirect indication of editing behaviour, i.e. it concerns either spurious products or not detected/adjusted prices.

Table 11 shows that the total amounts detected in-app are closer to the true values than the total amounts detected in-house, regardless of whether in-app editing was enabled or not. This finding may be explained by the fact that the in-house language processing assumed scan were made without cropping of products and prices. The in-app language processing did detect whether a respondent performed cropping. Figure 4 shows a scatter plot of relative differences in amount for true values for in-app and in-house processing which confirms the finding.

Figure 4: Scatter plot of differences in amounts in-app and in-house relative to true values.

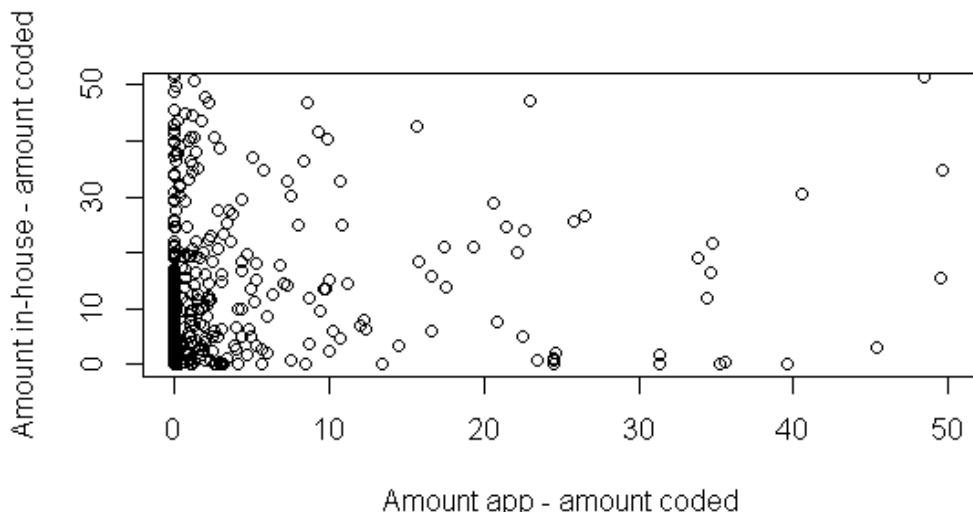


Table 11 also shows that when allowing for editing, the difference to in-house gets larger. This difference is especially clear when looking at the absolute amount difference. When looking at the number of products, it is visible that the difference between the number of products in-app relative to the manually coded receipts is larger than the difference between the number of products according to the in-house results. Respondents seem to add products, but do not delete wrong products. Lastly, the number of 'zero amounts' is smaller in-app compared to in-house. Respondents, thus, do delete spurious rows or correct rows with an amount of zero.

Overall, it can be concluded that respondents edit (and improve) the total amount and delete rows with an amount of zero. In addition, they add products but somehow this not seems to improve the data quality much. The difference between the real (coded) number of products and the in-app results is lower than the difference between the real (coded) number of products and the in-app results.

Table 11: Differences in (absolute) total amounts, (absolute) number of products and number of zero amounts relative to the manually coded receipts.

	In-app editing				No in-app editing	
	In-app		In-house		In-app	
	Mean	Median	Mean	Median	Mean	Median
Difference amounts	2.6 Euro	0.0 Euro	-12.1 Euro	-7.0 Euro	-3.4 Euro	-0.8 Euro
Difference amounts absolute	5.0 Euro	0.0 Euro	18.7 Euro	10.1 Euro	17.1 Euro	5.5 Euro
Difference number of products	4.4	2.0	1.0	0.0	-3.3	-1.5
Difference number of products absolute	4.7	2.0	3.1	2.0	4.0	2.0
#zero amounts	4.4	1.0	7.0	4.0	7.3	5.0

5.3.1 THE IMPACT OF IN-APP EDITING ON DATA QUALITY

The findings in the previous subsection show that data quality improves when respondents have the option to edit. Especially when it comes to the total amount and removing fake rows with an amount of zero.

Table 12: Data quality comparison between the results detected in-app and the OCR results, only for sample units that have in-app editing turned on.

	With editing	Without editing
Correct amount	7.8%	2.7%
Difference amount <= 1 Euro	63.9%	11.1%
Correct number of products	27.6%	16.1%
Difference number of products <=1	43.5%	45.5%
No zero amounts	38.0%	18.5%

Table 12 evaluates the correctness of the results for in-app text extraction with and without in-app editing enabled. It is clearly visible that the largest improvement in data quality is on the total amount. 63.9% of amounts submitted by the respondents lies within 1 Euro of the true amount compared to only 11.1% of the amounts without editing. Respondents thus seem willing and able to edit the total amount. The improvement on the number of products is more modest, indicating that respondents are less active in adding or removing lines. The number of purchases with no zero amounts increases from 18.5 to 38.0%. Again respondents do edit these lines, but their only in part.

Finally, table 13 shows the correlation between the difference in total amounts, number of products and zero amounts and the manually coded number of products on the receipts. The rationale behind this evaluation is that respondents may be more willing to accurately check and edit shorter receipts. On a shorter receipt, mistakes are also easier spotted and it is less work to completely correct the receipt.

As can be observed in table 13, the length of the receipts does have an influence on editing behaviour, but only modest. The correlation between the in-house results and the length of the receipt is much larger; The longer the receipt, the more chance that the in-house algorithm is wrong. Even though the correlation between receipt length and amount and number of zero amounts is significant, the correlation is much smaller, which indicates that respondents have also (successfully) edited the longer receipts.

Table 13: Correlations between the coded number of products on the receipt and the differences in absolute total amounts, absolute number of products and number of zero amounts relative to the manually coded receipts.

	In-app results	OCR results
Difference amount absolute	.16*	.52*
Difference number of products absolute	.09	.25*
Number of zero amounts	.17*	.61*

* Indicates significance, $p < .001$.

5.4 FINDINGS IN-APP EDITING

In sum, three main conclusions emerge from the analyses into in-app editing:

- Allowing for in-app editing does not affect activity rates and completion rates. There is weak evidence that respondents that can edit do not have more scans but do have more products per scan.
- Respondents do make use of the option of editing; the amounts get closer to true values and also the number of zero amounts decreases;
- While respondents do edit, they do not remove all errors; also for the sample with editing enabled could differences to true values be large;

The first conclusion of no strong impact on activity and completion is positive; in-app editing does increase the burden for respondents and should, thus, not backfire.

The last conclusion implies that work needs to be done to challenge respondents to do even more. Obviously, this task depends heavily on the performance of the OCR and language processing. Looking at the sample without editing option, this performance definitely can and should be improved.

5. DISCUSSION

This important deliverable considered two design features that may be included to engage and involve respondents: personalized feedback and in-app editing of text extraction. Five research questions were formulated around the two features. The answers are:

1. Does in-app editing reduce drop-out rates? No, it does not.
2. Does in-app editing improve number and diversity of purchases? Yes, it does, but only partially; also under in-app editing products-prices still show deviances to true values.
3. Does in-app feedback improve recruitment rates? No, it does not in this experiment.
4. Does in-app feedback reduce drop-out rates? No, it does not in this experiment.
5. Does in-app feedback improve number and diversity of purchases? There is only weak evidence that the diversity in purchase amounts grows when feedback is provided.

The findings for in-app editing are relatively positive. Respondents do perform editing tasks, but their actions are incomplete. There are a few options to challenge them to do more editing tasks:

- Improve the performance of receipt processing, in particular, the language processing of receipts;
- Employ the in-app OCR performance score to inform respondents that a scan may have insufficient quality;
- Make it more salient in the user interface that there is a gap between the total amount provided by the respondent and total amount detected in-app;
- Make editing of receipts more 'enjoyable' through visualizations and colours;

The empirical findings for in-app editing support enabling this option in future versions of the HBS app.

The findings for personalized feedback are disappointing. There is no or only modest impact of the option in either representation and measurement. The differences between countries (a positive impact in LU and a negative impact in LU) are puzzling. It is conjectured that these may have to do with the implementation in recruitment material and how interviewers did or did not use feedback as motivating arguments. The overall findings are, however, in line with other studies, in particular in the UK. In usability tests prior to field work, respondents did appreciate the feedback and some test persons mentioned they expected such feedback. While appreciated or expected, on large scale impact is not noticeable. The only positive finding is, perhaps, that feedback did also not adversely alter respondent behaviour. Offering insights may alter households' behaviour, but there is no sign of this experimental impact. So how can personalized feedback be made more effective:

- Make it even more salient in recruitment material through an extra brochure, say in the form of a smartphone with feedback statistics;
- Personalize feedback by adding benchmark values for households with similar characteristics, e.g. household size and age composition;
- Ask respondents what kind of feedback they like;

These options do, however, again bring into question whether they may alter the behaviour of households. For now, the recommendation is to keep personalized feedback as is.

In this deliverable only two design features to engage and involve respondents were evaluated. These are also the most obvious and natural to respondents. However, there are more options:

- Personalize the app within a household;
- Visually reward adding purchases and performing editing tasks;
- Adding uploading of digital receipts as a third data entry option;
- Provide fact sheets about certain expenditures;
- Allow respondents to keep using the app for personal use;

ANNEX A: RECRUITMENT MATERIAL WITH AND WITHOUT PERSONALIZED FEEDBACK

See separate document.



Miguel A. de Castro Puente
Director General de Coordinación Estadística
y de Estadísticas Laborales y de Precios

Etiqueta personalizada

Estimado/a Sr./a.:

Me dirijo a Vd. para comunicarle que el Instituto Nacional de Estadística (INE), dentro del programa de encuestas dirigidas a los hogares, está realizando la Encuesta de Presupuestos Familiares (EPF), que se lleva a cabo en toda la Unión Europea (UE).

La EPF es una operación estadística diseñada con el objetivo fundamental de obtener información para el estudio y seguimiento de los gastos de los hogares. Sus datos se utilizan, además, para el cálculo de las ponderaciones de los distintos artículos que forman el Índice de Precios de Consumo (IPC), así como para la estimación del consumo privado en la Contabilidad Nacional y la obtención de indicadores sociales en diversos campos como la nutrición, equipamiento de los hogares, etc.

La Oficina de Estadística de la Unión Europea (Eurostat) está promoviendo un estudio piloto cuyo objetivo es introducir las nuevas tecnologías en la recogida de datos. En el ámbito de este proyecto, el INE pone a su disposición una aplicación para que pueda introducir todos los datos solicitados utilizando únicamente su teléfono móvil.

En breve, un entrevistador del INE se pondrá en contacto con Ud. con objeto de informarle de la encuesta y proporcionarle toda la ayuda necesaria para la utilización de dicha aplicación. Así mismo, en el folleto que acompaña esta carta (así como en la página web que figura al final de esta carta) podrá encontrar las instrucciones para descargar la app en su teléfono móvil. Una vez que la haya descargado, podrá acceder utilizando las siguientes credenciales:

Usuario: uuuuuuuuu

Contraseña: ppppppppp

Igualmente, le informo que todos los datos que suministre al INE son estrictamente confidenciales y están protegidos por el secreto estadístico, según establece la Ley de la Función Estadística Pública (Ley 12/1989), que prohíbe la utilización de los datos personales individualizados por cualquier otra institución pública o privada.

Si desea obtener aclaraciones específicas sobre algunos aspectos de esta estadística o recibir una información más extensa sobre la misma, puede llamar al teléfono gratuito **900 xxx xxx** o enviar un e-mail a **recogida.epf@ine.es**.

También ponemos a su disposición la página web www.ine.es/epf donde podrá encontrar el enlace para descargar la aplicación en su teléfono móvil y otras informaciones y ayudas importantes para la cumplimentación de la encuesta.

Agradeciendo de antemano su valiosa colaboración, le saluda atentamente.

Encuesta de Presupuestos Familiares

Anexo relativo a protección de datos.

Información básica sobre Protección de Datos	
<i>Responsable</i>	Instituto Nacional de Estadística
<i>Finalidad</i>	Realización de esta Encuesta del Plan Estadístico Nacional
<i>Legitimación</i>	Cumplimiento de una obligación legal
<i>Legislación</i>	Ley 12/1989 de la Función Estadística Pública y Reglamento 223/2009 relativo a la estadística europea
<i>Destinatarios</i>	No se ceden datos a terceros fuera del Sistema Estadístico Europeo, salvo obligación legal.
<i>Derechos</i>	De acuerdo con los artículos 89.2 del Reglamento 2016/679 relativo a la protección de datos de personas físicas y 25.3 de la Ley Orgánica 3/2018 de Protección de Datos Personales y Garantía de Derechos Digitales no podrán ejercerse los derechos de acceso, rectificación, oposición y limitación de tratamiento.
<i>Información adicional</i>	Puede consultar la información adicional y detallada sobre Protección de Datos en nuestra página web: http://www.ine.es/proteccion_datos/oe/30458

Anexo: Instrucciones para registrar las compras en la App

¿Qué compras debe registrar? Se deben registrar todas las compras que **cualquier miembro del hogar realice durante los 7 días de anotaciones**, contados a partir del día en que el hogar entra por primera vez en la aplicación.

Puede registrar los gastos de todos los miembros del hogar desde un único dispositivo o puede descargar la app en varios dispositivos, entrando en todos ellos con las mismas claves (de la vivienda). En este caso, todos los miembros del hogar que registren sus gastos deben hacerlo a lo largo de los 7 días fijados a partir del primer acceso del hogar.

Las compras incluyen tanto **bienes** (alimentos, ropa, calzado, muebles, electrodomésticos, medicinas, automóviles, prensa, etc.) como **servicios** (tintorería, dentista, billetes de tren, entradas de cine, peluquería, así como todo tipo de reparaciones: fontanería, llevar el coche al taller, reparaciones de electrodomésticos, etc.).

En caso que la compra se realice, bien **en el extranjero**, bien por **internet** (independientemente de la forma de pago), se deberá especificar marcando el botón correspondiente.

Si no tiene tique de compra, o tiene dificultad en hacerle una foto, debe seleccionar el botón “Añadir” (dibujo de un teclado) y añadir la compra manualmente artículo a artículo.

Al escribir un artículo, la aplicación le mostrará un desplegable con una lista de productos que puede seleccionar. Si el suyo no aparece en la lista, utilice el botón “no lo encuentro”, que está situado en la parte superior derecha e introduzca el producto comprado. Luego clasifíquelo en una de las opciones que la aplicación le ofrece. En caso que no se corresponda con ninguna de las categorías, clasifíquelo en “Adicional”. Para facilitar la búsqueda, en la lista de productos que incorpora la aplicación se han eliminado los acentos.

Si tiene tique de compra, debe seleccionar el botón “Añadir” (dibujo de una cámara) y hacerle una foto al tique. Una vez recortados los artículos adquiridos en el tique le aparecerá la relación de los productos adquiridos con sus importes correspondientes.

Si el tique no ofrece información suficiente para conocer con detalle el tipo de compra realizada (por ejemplo, en la ropa se debe especificar si es de hombre, mujer o niño), o una vez escaneado se detecta algún fallo en la descripción de la compra, importe, etc., se puede editar cada artículo para aclarar o corregir lo que se considere conveniente.

Cerrar el día. Una vez anotados todos los gastos de un día se debe cerrar el día a través del calendario de la aplicación. Seleccione el día y elija “Cerrar día”; el día se pondrá de color verde en el calendario.

De esta manera puede ver claramente en qué días se han realizado anotaciones, qué días están cerrados y en qué días aún no se ha entrado para efectuar anotaciones.

En la página web www.ine.es/epf podrá encontrar información más detallada sobre cómo registrar sus compras así como las dudas más frecuentes.

¿Necesita información adicional?

Si desea cualquier información adicional sobre la app o sobre cómo registrar correctamente los datos, puede dirigirse a la página web de la encuesta tecleando:

https://www.ine.es/ine/epf_piloto

O escaneando este código QR:



También puede contactar con uno de nuestros entrevistadores en la dirección:

recogida.epf@ine.es

O en el teléfono gratuito:

900 463 463

- El INE solo solicita información con fines estadísticos.
- Serán objeto de protección y quedarán amparados por el **secreto estadístico**, los datos personales que obtengan los servicios estadísticos (Art. 13.1 de la Ley de la Función Estadística Pública de 9 de mayo de 1989 – LFEP).
- Todo el personal estadístico tendrá la obligación de preservar el secreto estadístico (Art. 17.1 de la LFEP).



Encuesta
de Presupuestos
Familiares
2021

IN[–]
Instituto Nacional de Estadística

¡Su información importa!

La Encuesta de Presupuestos Familiares (EPF) que realiza el Instituto Nacional de Estadística (INE), incluye unas 24.000 viviendas en su muestra y permite conocer el gasto en consumo de los hogares residentes en España, así como la distribución del mismo entre los diferentes bienes y servicios.

La EPF se encuentra incluida en el Plan Estadístico Nacional vigente.

¿Qué le pedimos a su hogar?

La colaboración en esta Encuesta consiste básicamente en anotar todos los gastos que realicen los miembros de su hogar durante una semana.

Su vivienda ha sido seleccionada para cumplimentar esta Encuesta a través de una aplicación que podrá descargar de forma temporal en su dispositivo (teléfono móvil o tableta).

La reconocerá pues su icono es:



- Podrá acceder a la app con las claves que figuran en la carta adjunta.
- Su colaboración consiste en (tras un pequeño cuestionario sobre su hogar la primera vez que entre) registrar los gastos que realicen todos los miembros de su hogar durante una semana. Por ejemplo, considere los gastos en el supermercado, hostelería, peluquería, etc.

Para introducir los gastos realizados le aparecerán dos opciones:

1

Cumplimentarlos manualmente

A screenshot of the mobile application interface showing the 'Agregar recibo' (Add receipt) screen. It asks for the establishment type (Supermarket), date (Today), and purchase location (In the supermarket). Below this, a list of purchases is shown with their prices: 2,05 for BOCAS O PALITOS DE ..., 0,65 for AGUA MINERAL CON O ..., 0,75 for TE DE TODO TIPO, and a total importe total of 3,45.

2

Fotografiar el tique de compra



Si el tique no ofrece información suficiente, puede editar cada artículo para aclarar lo que se considere conveniente.

Una vez que se han anotado todos los gastos de un día, puede cerrar el día a través del calendario de la aplicación.

¿Cuánto he gastado y en qué?



Puede utilizar el "Resumen" que ofrece la app en su menú inferior para conocer gráficamente los gastos semanales de su hogar; así puede ver cuánto dinero se ha gastado y en qué tipo de productos y servicios.



¿Cuánto tiempo le lleva participar?

Debido a que una de las posibilidades es fotografiar un recibo o tique, participar le llevará muy pocos minutos al día durante una semana.

Encontrará instrucciones más detalladas en nuestra página WEB o en las ayudas de la propia app.



Le STATEC vous remercie pour votre participation à son enquête pilote « Budget des Ménages »

Nous vous remercions infiniment d'avoir participé à ce projet du STATEC, qui est d'une grande importance pour l'enquête « Budget des ménages ». L'objectif de ce projet consiste à moderniser cette enquête dans le futur. Grâce à votre participation, le STATEC pourra analyser l'impact et l'utilité d'une application mobile dans le cadre de cette enquête.

Comme annoncé dans nos communications précédentes, votre effort sera rémunéré de 45 euros.

Nous souhaitons tout de même attirer votre attention sur le fait que **le paiement peut prendre jusqu'à deux mois et qu'il sera réalisé par la Trésorerie de l'Etat**. Comptez donc 2 mois à partir de la date à laquelle vous avez terminé l'application.

Merci encore pour votre participation et nous espérons pouvoir compter sur vous lors d'un prochain projet du STATEC. Votre avis compte pour nous !

Cordialement,

L'équipe « Budget des Ménages » du STATEC

STATEC





Protection de vos données

STATEC

Institut national de la statistique
et des études économiques

Notice d'information sur vos données personnelles

Vos données personnelles sont traitées par le STATEC, 13 rue Érasme, L-1468 Luxembourg, e-mail : ebm@statec.etat.lu. La collecte des données est effectuée pour le compte du STATEC par son sous-traitant CBS (Dutch Central Bureau of Statistics). Le STATEC est une administration étatique, sous l'autorité du Ministère de l'Économie, qui jouit pourtant de l'indépendance scientifique et professionnelle. Cela signifie que le STATEC fixe son programme de travail en accord avec la législation statistique nationale et européenne, et qu'il produit et diffuse ses données en toute neutralité.

Vos données personnelles seront définitivement supprimées au plus tard 2 ans après la collecte. Pendant ce temps, vos données sont traitées confidentiellement. Elles ne peuvent être utilisées que dans un but purement statistique et ne seront en aucun cas divulguées. Les mandataires et agents du STATEC sont tenus personnellement responsables de la stricte observation du secret statistique. Le STATEC a également mis en place une série de mesures techniques et organisationnelles pour protéger vos données personnelles, telles que la sécurisation de la technologie informatique ou encore la limitation stricte des droits d'accès aux données attribués aux agents du STATEC et aux sous-traitants.

L'objectif de l'enquête principale

L'enquête principale sur le budget des ménages du STATEC fournit des informations précieuses sur les dépenses des ménages au Luxembourg. Grâce à cette enquête, le STATEC peut déterminer si la vie au Luxembourg devient plus chère ou moins chère. L'étude permet également de faire des analyses entre différents groupes de ménage (famille avec de jeunes enfants, célibataires, personnes âgées etc.). Le STATEC utilise également les informations de l'enquête pour calculer l'inflation (la dépréciation de la monnaie).

L'échantillon de l'enquête pilote

Au cours de l'enquête annuelle sur les revenus et les conditions de vie des ménages (EU-SILC) et de l'enquête trimestrielle sur le tourisme d'affaires et de loisirs, le STATEC a demandé aux participants s'ils accepteraient d'être sollicités ultérieurement pour des études *ad hoc* comme des groupes de discussion ou des enquêtes en ligne.

Dans le cadre de l'enquête pilote sur le budget des ménages, le STATEC a contacté 1700 de ces volontaires. La participation de ces personnes est très importante afin d'améliorer les outils et les questionnaires du STATEC : l'avis des citoyens permet d'évoluer !

En cas de réclamation

Vous pouvez contacter le délégué à la protection des données du STATEC, par courrier : DPO, STATEC, B.P. 304, L-2013 Luxembourg, par téléphone au 247-88 492, ou e-mail : dpo@statec.etat.lu. Vous pourrez notamment être informé de vos droits selon les articles 15 à 21 du Règlement Général sur la Protection des Données (UE) n° 2016/679, à savoir le droit d'accès à vos données, de leur rectification ou effacement, les droits à la limitation du traitement ou d'opposition à un traitement, et enfin le droit à la portabilité des données. Vous avez aussi la possibilité de déposer une plainte auprès de la Commission Nationale pour la Protection des Données par courrier : CNPD 15, Boulevard du Jazz L-4370 Belvaux ou par téléphone : 26 10 601.



MANUEL D'UTILISATION

STATEC

Institut national de la statistique
et des études économiques

I. Installation de l'application

ATTENTION : L'application peut être téléchargée uniquement sur smartphone et tablette (PAS sur ordinateur de bureau ou ordinateur portable).

ATTENTION : Veuillez installer l'application qu'à partir du jour où vous envisagez de commencer l'enquête.

Quoi faire si vous avez déjà installé l'application sur votre smartphone alors que vous ne pouvez pas commencer l'enquête le jour du téléchargement ?

Supprimez l'application sur votre smartphone et téléchargez-la de nouveau lorsque vous envisagez de commencer l'enquête.

Comment télécharger l'application sur votre smartphone ?

1. Sur votre appareil, ouvrez le Google Play Store (Android)  ou l'App Store (Apple) 
2. Dans la barre de recherche, tapez « Enquête Budget des Menages » ou « Household Budget Survey »
3. Sélectionnez l'icône suivante : 
4. Cliquez ensuite sur « Installer » pour télécharger l'application sur votre smartphone.
5. L'application va maintenant être installée sur votre téléphone. Vous verrez ensuite le bouton « Ouvrir » dans votre Store. Appuyez sur ce bouton pour ouvrir l'application « Enquête sur le budget des ménages ».
6. Un raccourci de l'application est maintenant installé sur l'écran de votre smartphone. À l'avenir, vous pourrez ouvrir l'application via ce raccourci.



II. Connection à l'application

Veuillez tout d'abord choisir dans le menu déroulant la version « Luxembourg (FR) » de l'application.

Quoi faire si vous avez choisi la mauvaise version de l'application ?

Supprimez l'application sur votre smartphone et téléchargez-la de nouveau en sélectionnant la version « Luxembourg (FR) » de l'application.

Comment vous connecter à l'application ?

Le courriel d'invitation que vous a envoyé le STATEC contenait un nom d'utilisateur et un mot de passe. Veuillez les introduire dans les champs dédiés à cet effet pour vous connecter. Cliquez ensuite sur « Se connecter manuellement »



III. Questionnaire d'introduction

Avant d'accéder à la partie sur les dépenses du ménage, il vous est demandé de répondre à quelques questions sur votre logement et sur la composition de votre ménage. Chaque question doit être remplie pour pouvoir avancer dans le questionnaire.

IV. Dépenses du ménage

Dans cette partie, il s'agit de renseigner **toutes les dépenses de tous les membres du ménage pendant exactement 15 jours**.

1. Rubrique – « Calendrier »

Le calendrier vous indique la durée de l'enquête, le jour en cours, les jours complétés et les jours manquants :

- Si vous avez complété un jour, ce dernier apparaîtra en vert
- Les jours restants sont représentés par la couleur bleu clair
- Les jours manquants figurent en couleur orange.

Comment saisir vos dépenses à partir de l'agenda ?

Cliquez sur le jour en question et saisissez vos dépenses par magasin.

ATTENTION : Vous ne pouvez pas compléter un jour en dehors de la période de collecte des données (15 jours à partir du téléchargement de l'application). L'application affiche aussi un message d'erreur lorsque vous complétez des jours dans le futur. Il vous est uniquement possible de compléter un jour dans le passé et le présent, dans la période de collecte des données.



2. Rubrique – « Dépense »

Delhaize	Hypermarchés et supermarchés	€7,00	▲
<input type="button" value="Supprimer"/>	<input type="button" value="Modifier"/>	<input type="button" value="Dupliquer"/>	
1x Jus de pomme €2,00	Jus de fruits et de légumes	€2,00	
1x Chocolat €3,50	Chocolat	€3,50	
1x Shampoo €1,50	Articles d'hygiène corporelle	€1,50	

La rubrique « Dépense » vous affiche un résumé de tous les produits achetés, par magasin. Elle vous permet aussi de supprimer, modifier ou dupliquer vos dépenses.

Comment modifier un produit précis dans une liste d'achats ?

Cliquez d'abord sur le magasin/lieu d'achat concerné, ensuite sur le bouton « modifier ». Sélectionnez ensuite le produit concerné et choisissez une des trois options suivantes : supprimer, modifier ou dupliquer le produit.

Comment éviter de devoir saisir plusieurs fois la même dépense ?

Sélectionnez le magasin ou le produit et cliquez sur l'option « dupliquer ».

3. Fonctionnalité : Signe « + »



Appuyez sur le signe « + » pour déclarer une nouvelle dépense. Cliquez ensuite :

- sur l'icône du clavier si vous souhaitez saisir vos dépenses **manuellement (3.1)**
OU:
- sur l'icône de l'appareil photo si vous préférez **prendre une photo de votre ticket de caisse (3.2)**

Vous pouvez alterner entre ces deux options de saisie pour chaque achat.

3.1 Saisie manuelle :

Cette option vous permet de saisir vos dépenses manuellement dans l'application.

- 1) Renseignez le magasin/lieu d'achat dans lequel vous avez effectué vos dépenses
- 2) Saisissez la date de l'achat
- 3) Le pays d'achat (par défaut 'Luxembourg') – Cochez 'étranger' ou 'internet' si l'achat n'a pas été effectué dans un magasin physique au Luxembourg
- 4) Cliquez ensuite sur « Nouvelle dépense ou déclaration » pour déclarer votre/vos dépense/s.

En quelle langue l'application fonctionne-t-elle ?

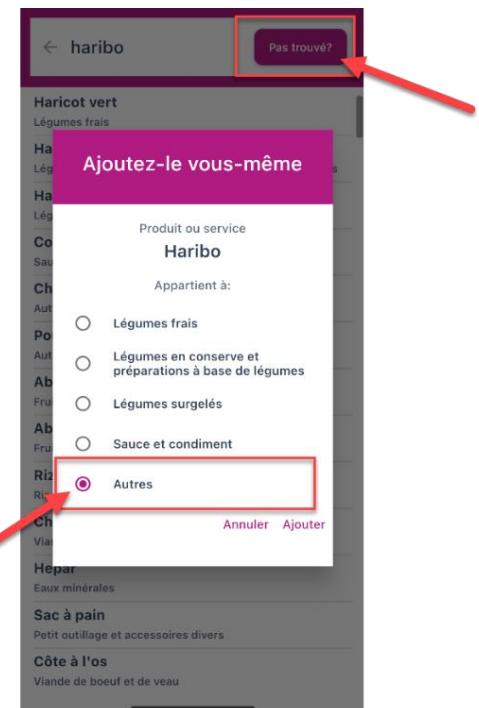
L'application n'existe qu'en français. Veuillez donc saisir vos produits et magasins en langue française afin de les retrouver dans la liste proposée par l'application.

Quoi faire si le produit acheté ne figure pas dans la liste proposée par l'application ?

Saisissez le produit acheté et cliquez ensuite sur « Pas trouvé ? ». Sélectionnez ensuite le type de produit auquel correspond le produit acheté (Exemple : Produit acheté : Haribo = Type de produit : sucreries)

Quoi faire si aucun des types de produit proposés par l'application ne correspond au produit saisi ?

Sélectionnez l'option « Autres ».

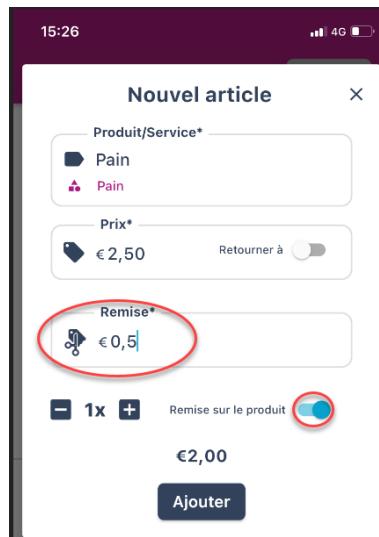


Quoi faire si le magasin dans lequel vous avez fait vos achats ne figure pas dans la liste proposée par l'application ?

Saisissez le nom du magasin et cliquez sur « Pas trouvé ? ». Sélectionnez ensuite le type de magasin auquel correspond le magasin (Exemple : Magasin : Bricowelt = Type de magasin : Grand magasin spécialisé non alimentaire)

Quoi faire si aucun des types de magasin proposés par l'application correspond au magasin saisi ?

Selectionnez l'option « Autres ».



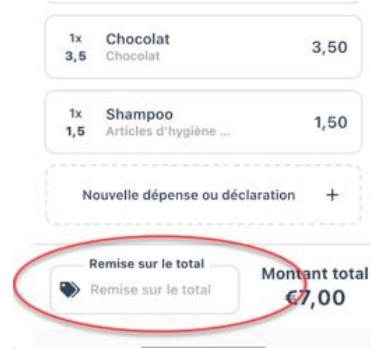
The screenshot shows the 'Nouvel article' screen. It includes fields for Product/Service (Pain), Price (€ 2,50), Discount (€ 0,5), and Quantity (1x). The 'Remise sur le produit' switch is turned on. At the bottom, there's an 'Ajouter' (Add) button.

Comment renseigner une remise sur un produit ?

Veuillez saisir votre produit et le prix du produit sans la remise. Ensuite activez le bouton « Remise sur le produit » et saisissez le montant de la remise. Le système calculera alors le prix final de votre produit.

Comment renseigner une remise sur un montant total ?

Saisissez d'abord tous les produits achetés. Cliquez ensuite sur le champs « Remise sur le total » et renseignez-y le montant de la remise. Le système calculera alors le prix final de votre achat.



The screenshot shows a shopping cart with three items: Chocolat (3,5 units at €3,50), Shampoo (1,5 units at €1,50), and a 'Nouvelle dépense ou déclaration'. Below the cart, a red circle highlights the 'Remise sur le total' button, which is currently set to 'Montant total €7,00'.

Comment valider une journée ?

Après avoir saisi toutes vos dépenses d'une journée, cliquez sur « Complétez le jour » pour enregistrer les résultats.

Peut-on ajouter une dépense après avoir validé une journée ?

Oui, vous pouvez ajouter à tout moment une dépense même si votre journée a déjà été validée.

3.2 Photo du ticket de caisse :

Cette option vous permet d'automatiser votre procédure de saisie en prenant directement en photo votre/vos ticket(s) de caisse. A partir des informations sur la photo, l'application enregistrera automatiquement les différentes inscrites sur le ticket.

Comment prendre votre ticket de caisse en photo ?

1. Prenez votre ticket de caisse en photo
2. Recadrez ensuite votre image en sélectionnant uniquement les produits achetés et leurs prix. Le montant total du ticket de caisse ainsi que d'autres informations (nom du magasin, date de l'achat etc.) ne doivent sélectionnés !
3. Évitez de mettre du blanc à l'arrière-plan de la photo. Cela risque de rendre plus difficile la lecture par l'application des informations inscrites sur le ticket de caisse
4. Si votre ticket de caisse présente des plis ou des rides, essayez de le rendre aussi plat que possible.

Est-ce que l'application reconnaît tous les produits sur le ticket de caisse ?

NON, pas toujours. Il est **très important de contrôler vos données après avoir pris votre ticket de caisse en photo**. Si un produit n'a pas été reconnu par l'application, veuillez modifier ce produit manuellement, en cliquant sur le produit concerné. Veuillez également supprimer tout texte non utile (titre, nom du magasin ou autre texte), reconnu en tant que produit par l'application.

ATTENTION : Si le ticket de caisse est de mauvaise qualité (pas lisible, trop plié etc.) ou trop chargé en informations, la photo risque de ne pas avoir une qualité suffisante pour être exploitable. Dans ce cas, il faudra alors saisir vos dépenses manuellement. Si le ticket de caisse est trop long, il faudra mieux le prendre en photo en plusieurs étapes.

4. Rubrique « Graphiques »

Cette partie vous donne une vue d'ensemble sur vos dépenses par catégorie d'achat.

5. Rubrique « Paramètres »

Afin de ne pas oublier de saisir vos dépenses dans l'application, vous pouvez **activer un rappel quotidien** dans la rubrique « paramètres ». Activez d'abord le bouton « Rappel quotidien » et renseignez ensuite l'heure à laquelle vous souhaitez être rappelé.

Dans cet onglet, vous trouvez également les coordonnées de contact du STATEC. Vous pouvez nous contacter du lundi au vendredi entre 9h et 12h.



V. AUTRES POINTS D'ATTENTION :

- Lorsque vous utilisez l'application « Budget des Ménages », veillez à fermer toute autre application sur votre smartphone.
- Si votre smartphone date d'avant 2016, veillez à ne pas utiliser la caméra pour prendre un ticket de caisse en photo. Dans ce cas, veuillez saisir vos dépenses manuellement.
- Pour des raisons techniques, éviter d'utiliser un smartphone de la marque HUAWEI pour télécharger l'application. Si possible, utilisez un smartphone d'une autre marque disponible dans votre ménage.
- Pour le moment, l'application n'existe qu'en français. Veuillez donc saisir les noms des produits et des magasins en langue française afin de pouvoir les retrouver dans la liste de l'application.
- Plusieurs appareils différents (smartphones ou tablettes) peuvent être utilisés au sein d'un même ménage pour saisir vos dépenses. Pour toute première connexion à l'application avec un nouvel appareil, veuillez utiliser le nom d'utilisateur et le mot de passe fournis dans le courriel d'invitation.
- Les dépenses saisies par un membre du ménage seront sauvegardées et visibles par un autre membre du même ménage utilisant les mêmes identifiants mais un autre appareil.

VI. PERIODE DE L'ENQUETE

L'enquête se déroule jusqu'au **31 décembre 2021**. Vous êtes donc invité à démarrer l'enquête **au plus tard le 17 décembre 2021** afin d'avoir assez de temps pour pouvoir saisir vos dépenses pendant une durée de 15 jours.

VII. FIN DE L'ENQUETE

L'enquête est terminée lorsque vous aurez saisi, pendant une durée 15 jours, toutes vos dépenses dans l'application. Vous pourrez alors désactiver les notifications et fermer l'application.

Le STATEC verra dans sa base de données que vos 15 jours ont été achevés.

VIII. CONTACT STATEC

Les agents du STATEC sont à votre disposition du lundi au vendredi de 9h à 12h :

Tél : +352 247 88420

Courriel : ebm@statec.etat.lu

Vous trouvez également plus d'informations sur cette enquête sur le site du STATEC, sous la rubrique « Enquêtes », enquête pilote sur le budget des ménages (application).

IX. REMUNERATION

Pour vous remercier de votre effort, votre participation sur 15 jours sera rémunérée à hauteur de **45 euros**.

Pour pouvoir être indemnisé(e), nous vous prions d'imprimer la fiche de coordonnées bancaires jointe à l'email d'invitation et nous la renvoyer par email (ebm@statec.etat) ou par voie postale, à l'adresse du STATEC :

STATEC
Enquête budget des ménages
13, rue Erasme
L- 1468 Luxembourg

Nous vous remercions d'avance de votre participation à ce nouveau projet du STATEC. Votre collaboration est très importante pour nous permettre d'améliorer nos outils et pour les adapter au mieux aux besoins et attentes des citoyens au Luxembourg !

MERCI !

Centraal Bureau voor de Statistiek
Postbus 24500 | 2490 HA Den Haag
Postbus 4481 | 6401 CZ Heerlen
www.cbs.nl

De heer J.D.M. van Leeuwen
Violenstraat 25
5241 AJ ROSMALEN

ons kenmerk DVZ-2021-S-H0047/BO
onderwerp CBS-onderzoek
datum Heerlen, september 2021

Geachte heer van Leeuwen,

Hoeveel kunnen Nederlanders per maand kopen? Kunnen bepaalde groepen steeds meer uitgeven en andere juist minder? En wordt het leven in Nederland duurder of goedkoper? Om antwoord te krijgen op deze belangrijke vragen, voert het Centraal Bureau voor de Statistiek het Uitgaven Onderzoek uit.

Voor dit onderzoek vraagt het CBS een aantal huishoudens om tijdens een periode van twee weken de dagelijkse uitgaven bij te houden in een app. Uw huishouden is daar één van. U vertegenwoordigt veel andere huishoudens in Nederland. Het maakt niet uit of u veel of weinig uitgaven heeft. Uw deelname is belangrijk.

Binnenkort kunt u bezoek verwachten van één van onze medewerkers. Hij of zij zal u meer informatie geven en vragen of u mee wilt werken aan dit onderzoek.

Wat krijgt u van ons?

Als dank voor uw hulp ontvangt u bij deze brief een **VVV cadeaukaart ter waarde van 5 euro**. Als u besluit deel te nemen en het onderzoek afrondt, ontvangt u na afloop nog een **VVV cadeaukaart ter waarde van 20 euro**. Ook krijgt u een **duidelijk overzicht van de uitgaven van uw huishouden**. Een handig extraatje als dank voor uw deelname.

RZ4871

Centraal Bureau voor de Statistiek
Postbus 24500 | 2490 HA Den Haag
Postbus 4481 | 6401 CZ Heerlen
www.cbs.nl

De heer A.M.Y. Lefel
Petrus van Schendelstr 12
5246 GR ROSMALEN

ons kenmerk DVZ-2021-S-H0048/BO
onderwerp CBS-onderzoek
datum Heerlen, september 2021

Geachte heer Lefel,

Hoeveel kunnen Nederlanders per maand kopen? Kunnen bepaalde groepen steeds meer uitgeven en andere juist minder? En wordt het leven in Nederland duurder of goedkoper? Om antwoord te krijgen op deze belangrijke vragen, voert het Centraal Bureau voor de Statistiek het Uitgaven Onderzoek uit.

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Voor wat er feitelijk gebeurt



Het CBS gebruikt uw informatie uitsluitend voor statistische doeleinden. De gegevens worden nooit aan derden verstrekt.
Uw anonimiteit is strikt gewaarborgd.

Uitgave derde kwartaal 2021 | 526

1e Proef



Uitgaven
Onderzoek
2021



Uw antwoord telt!

Het CBS Uitgaven Onderzoek is een belangrijk onderzoek. Het CBS kan met de resultaten vaststellen hoeveel duurder het leven in Nederland wordt. Ook kunnen we zien hoe de welvaart zich ontwikkelt voor verschillende groepen, zoals voor gezinnen met jonge kinderen, alleenstaanden of voor ouderen. Uw huishouden is dit jaar uitgenodigd voor deelname aan het onderzoek. Kunnen we op u rekenen?

Wat vragen we van uw huishouden?

Na het installeren van de Household Budget Survey app op uw smartphone*, start u met het invullen van een korte vragenlijst.

Vervolgens vragen wij **alle leden van uw huishouden** om twee weken alle **privé uitgaven** te noteren. Denk bijvoorbeeld aan uitgaven in de supermarkt, in een webwinkel, in de horeca of bij de kapper. Vaste lasten hoeft u niet te noteren.

Hoe noteert u de uitgaven?

U noteert uitgaven door op de + te tikken in de app. U krijgt dan twee opties: 'Handmatig invullen' en 'Kassabon fotograferen'. Hieronder ziet u de verschillen tussen beide opties.

The screenshots illustrate the two methods for entering expenses. The left one shows manual entry for a supermarket visit, while the right one shows scanning a receipt from Albert Heijn.

* In de bijgevoegde brief vindt u meer informatie over het installeren van de app op uw smartphone.



Zijn alle uitgaven van een dag ingevoerd?

Dan kunt u de dag afsluiten via de kalender in de app. Tik op de dag en kies voor 'Dag afsluiten'.

De dag kleurt dan groen. Zo ziet u duidelijk welke dagen uw huishouden al heeft ingevuld en welke nog niet.

Zijn er geen uitgaven op een dag?

Sluit dan ook de dag af. Voor het onderzoek is het ook belangrijk om te weten dat uw huishouden een dag niets heeft gekocht.

Wat krijgt u van ons?

Als dank voor uw hulp ontvangt u eerder al een **cadeaukaart ter waarde van 5 euro**. Als u het onderzoek afrondt, ontvangt u na afloop nog een **cadeaukaart ter waarde van 20 euro**. Ook krijgt u in de app toegang tot een **duidelijk overzicht van de uitgaven van uw huishouden**. U kunt dan altijd zien hoeveel geld er wordt uitgegeven en waar aan. Een handig extraatje als dank voor uw deelname!



Hoeveel tijd kost het u?

Meedozen kost verrassend weinig tijd. Door de mogelijkheid om kassabonnen te fotograferen, bent u een paar minuten per dag kwijt. Helpt u ons mee?

Wilt u meer informatie over het onderzoek of over het gebruik van de app?

Kijk dan op de informatiepagina's in de app of op www.cbs.nl/uitgaven.

Voor wat er feitelijk gebeurt



Het CBS gebruikt uw informatie uitsluitend voor statistische doeleinden. De gegevens worden nooit aan derden verstrekt.
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Uitgave derde kwartaal 2021 | 526

1e Proef



Uitgaven
Onderzoek
2021

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The screenshots show the app's user interface for adding expenses. The left screen is for manual entry, while the right screen is for scanning receipts. Both screens include fields for the store, date, and type of purchase, along with a list of items and their prices.

* In de bijgevoegde brief vindt u meer informatie over het installeren van de app op uw smartphone.



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