INE

INSTITUTO NACIONAL DE ESTADISTICA

Analysis of non-response

Survey on Information and Communication Technology Equipment and Usage in Households (ICT_H)

October 2024

Index

INE. National Statistics Institute

I Introduction

The 2024 *Survey on Information and Communication Technology Equipment and Usage in Households* (ICT_H) is a statistical operation carried out by the National Statistics Institute (INE), following the methodological recommendations of the European Union's Statistical Office (EUROSTAT). The execution costs of this statistical operation have been co-financed by the European Union.

A three-stage sampling method is used, with stratification of the first stage units. The first-stage units are the census sections. The second-stage units are primary family dwellings, and in the third stage, one individual over 15 years old is selected in each dwelling. Additionally, all minors aged 10 to 15 years old in each dwelling are surveyed.

The survey is a continuous rotating panel survey carried out annually. The sample of sections and dwellings is partially renewed using a rotation schedule (four rotations) in order to incorporate the variations occurring in census sections, and also to prevent fatigue among cooperating families and give new families a chance for selection.

To identify potential differences in behaviour between units participating for the first time in the survey and those participating in a second or subsequent interview, the tables in this document have been prepared in duplicate to distinguish between these two types of units. Consequently, the titles of the tables specify either *first interview* or *subsequent interviews* as applicable, and the comments references the results obtained in both types of interview.

As in 2023, the same number of dwellings (15 dwellings) was selected in all first-interview sections (625 sections) in 2024, regardless of the section's autonomous community.

Errors affecting surveys are divided into two large groups: sampling errors (see **www.ine.es**) and non-sampling errors. The former can be estimated using statistical procedures, while the latter are difficult to measure, among other reasons, due to the wide variety of factors that may cause them.

This document highlights **non-sampling errors**, which occur at various stages of the statistical process. They can arise before data collection (sampling framework deficiencies, insufficiencies in definitions or questionnaires), during data collection (interviewer errors, incorrect statements, or non-response by respondents) and, finally, during post-fieldwork operations (errors in coding, recording, tabulation, etc.).

Among the potential causes that may give rise to non-sampling errors, **non-response from reporting units** stands out, which may occur due to refusal to cooperate by the reporting unit, absence during all attempted contacts through all collection channels, inability of all residents of the reporting unit to respond, or inaccessibility of the dwelling at the time of the interview.

II Data Analysis

Table 1 presents the distributions, by autonomous community, of the *theoretical sample*, expressed in the number of dwellings, and the *effective sample*, expressed as the number of surveyed households.

The theoretical sample consists of the new sample, corresponding to the rotation group due for renewal in 2024, which is group three, in addition to dwellings from the panel sample from previous cycles due to not having experienced any incidents leading to permanent removal, such as refusal, death, etc.

The effective sample is expressed in the number of households, as all resident households in each selected dwelling are surveyed, although the average number of households per dwelling is very close to one.

At the national level, the total effective sample represents 62.9 percent of the total theoretical sample (2.6 points higher than in 2023), with *first interviews* and *subsequent interviews* representing 52.9 and 68.5 percent, respectively. The highest percentage of the total effective sample, almost 70.9 percent, was reached in the Community of Madrid, while the lowest percentage was in the Balearic Islands, at almost 51.0 percent.

Autonomous Communities	Sample theoretica	Sample effective		First interview			Subsequent interviews		
				sample	Effective sample		sample	Effective sample	
	Dwellings	Ids	%	Dwellings	Ids	%	Dwellings	s	%
Total	26.193	16.478	62,91	9.375	4.956	52,86	16.818	11.522	68,51
01 Andalusia	2.494	1.411	56,58	885	431	48,70	1.609	980	60,91
02 Aragon	1.147	788	68,70	420	236	56,19	727	552	75,93
03 Asturias	1.285	820	63,81	450	238	52,89	835	582	69,70
04 Balearic Islands	1.277	672	52,62	435	180	41,38	842	492	58,43
05 Canaries	1.444	736	50,97	510	216	42,35	934	520	55,67
06 Cantabria	1.196	831	69,48	420	258	61,43	776	573	73,84
07 Castile and León	1.406	976	69,42	510	303	59,41	896	673	75,11
08 Castilla - La Mancha	1.371	862	62,87	495	251	50,71	876	611	69,75
09 Catalonia	2.220	1.376	61,98	810	422	52,10	1.410	954	67,66
10 Valencia	1.872	1.142	61,00	675	356	52,74	1.197	786	65,66
11 Extremadura	1.420	902	63,52	510	270	52,94	910	632	69,45
12 Galicia	1.558	1.053	67,59	570	321	56,32	988	732	74,09
13 Madrid	2.124	1.506	70,90	750	471	62,80	1.374	1.035	75,33
14 Murcia	1.288	707	54,89	465	198	42,58	823	509	61,85
15 Navarre	1.238	791	63,89	435	221	50,80	803	570	70,98
16 Basque country	1.440	959	66,60	525	284	54,10	915	675	73,77
17 La Rioja	1.129	767	67,94	405	238	58,77	724	529	73,07
18 Ceuta and Melilla	284	179	63,03	105	62	59,05	179	117	65,36

Theoretical and effective samples in the first and subsequent interviews

TABLE 1. Theoretical and effective sample distribution by autonomous communities

The distribution of the theoretical sample of dwellings by autonomous community for the first interview and subsequent interviews can be seen in **tables 2.1 and 2.2**. These tables allow evaluation of sample framework defects through non-surveyable dwellings.

Instances of non-response in surveyable dwellings due to absences, refusals, and inability to respond are presented in tables **2.3 and 2.4**.

In regards to **non-surveyable dwellings** (tables 2.1 and 2.2), which include empty and inaccessible dwellings, those used for other purposes, and previously selected ones, the national average stands at 2.3 percent in the first interview, decreasing to 1.2 percent in subsequent interviews. In the first interview, the lowest percentage of non-surveyable

dwellings was recorded in the Canary Islands, at almost 1.0 percent, while La Rioja had the highest, at 3.5 percent of non-surveyable dwellings. In subsequent interviews, the Basque Country was the community with the lowest percentage, at 0.5 percent, with the highest percentage being recorded in the Valencian Community, at 1.7 percent.

Based on this data, non-surveyable dwelling percentages are better than those recorded in 2023.

Autonomous Communities	Dwellings sample for the first interview						
	Total	Surveyable		surveyable		Inaccessible	
	No.	No.	%	No.	%	No.	%
Total	9.375	8.156	87,00	214	2,28	1.005	10,72
01 Andalusia	885	760	85,88	19	2,15	106	11,98
02 Aragon	420	364	86,67	11	2,62	45	10,71
03 Asturias	450	400	88,89	16	3,56	34	7,56
04 Balearic Islands	435	355	81,61	7	1,61	73	16,78
05 Canaries	510	432	84,71	5	0,98	73	14,31
06 Cantabria	420	377	89,76	13	3,10	30	7,14
07 Castile and León	510	446	87,45	16	3,14	48	9,41
08 Castilla - La Mancha	495	435	87,88	7	1,41	53	10,71
09 Catalonia	810	709	87,53	9	1,11	92	11,36
10 Valencia	675	578	85,63	11	1,63	86	12,74
11 Extremadura	510	453	88,82	15	2,94	42	8,24
12 Galicia	570	510	89,47	16	2,81	44	7,72
13 Madrid	750	696	92,80	9	1,20	45	6,00
14 Murcia	465	389	83,66	11	2,37	65	13,98
15 Navarre	435	359	82,53	16	3,68	60	13,79
16 Basque country	525	433	82,48	14	2,67	78	14,86
17 La Rioja	405	367	90,62	16	3,95	22	5,43
18 Ceuta and Melilla	105	93	88,57	3	2,86	9	8,57

TABLE 2.1. Dwellings sample distribution by autonomous community.
First interview

Autonomous Communities	Dwellings sample for subsequent interviews						
	Total	Surveyable		surveyable		Inaccessible	
	No.	No.	%	No.	%	No.	%
Total	16.818	15.427	91,73	197	1,17	1.194	7,10
01 Andalusia	1.609	1.419	88,19	19	1,18	171	10,63
02 Aragon	727	685	94,22	10	1,38	32	4,40
03 Asturias	835	763	91,38	9	1,08	63	7,54
04 Balearic Islands	842	710	84,32	10	1,19	122	14,49
05 Canaries	934	833	89,19	11	1,18	90	9,64
06 Cantabria	776	717	92,40	13	1,68	46	5,93
07 Castile and León	896	833	92,97	15	1,67	48	5,36
08 Castilla - La Mancha	876	811	92,58	12	1,37	53	6,05
09 Catalonia	1.410	1.304	92,48	10	0,71	96	6,81
10 Valencia	1.197	1077	89,97	21	1,75	99	8,27
11 Extremadura	910	846	92,97	10	1,10	54	5,93
12 Galicia	988	935	94,64	10	1,01	43	4,35
13 Madrid	1.374	1.301	94,69	16	1,16	57	4,15
14 Murcia	823	745	90,52	6	0,73	72	8,75
15 Navarre	803	746	92,90	7	0,87	50	6,23
16 Basque country	915	874	95,52	5	0,55	36	3,93
17 La Rioja	724	659	91,02	11	1,52	54	7,46
18 Ceuta and Melilla	179	169	94,41	2	1,12	8	4,47

TABLE 2.2. *Dwellings sample distribution by autonomous community.*
Subsequent interviews

The percentage of **surveyed dwellings** relative to surveyable dwellings (tables 2.3 and 2.4) is what we refer to as **response** rate in the survey. Nationally, this percentage reached 60.8 percent in the first interview and 74.7 percent in subsequent interviews, which represents about 0.9 percentage points less than in 2023 for the first interview and 2.2 more in subsequent interviews.

By autonomous community, Cantabria stands out with the highest percentages in the first interview, at 68.4 percent, while Castile and León had the highest percentage in subsequent interviews, at 80.8 percent. The lowest response rate, both in the first interview and subsequent interviews, was recorded in the Canary Islands, at 50.0 and 62.4 percent, respectively.

Regarding **refusals**, their national percentage reached 1.4 percent of surveyable dwellings in the first interview and nearly 0.8 percent in subsequent interviews (see tables 2.3 and 2.4). As can be seen, the Region of Murcia showed the highest percentage of refusals in the first interview, at 4.1 percent, while Aragon had the highest percentage in subsequent interviews, at 1.3 percent. On the other hand, the lowest percentages of refusals were recorded in Ceuta and Melilla, where there were no refusals in either the first interview or subsequent interviews.

Finally, the national percentage of **absences** stands at 37.6 percent in the first interview and 24.5 in subsequent interviews. By autonomous community, the Canary Islands is

the community with the highest percentage of absences in both the first interview, at 49.1 percent, as well as subsequent interviews, at 36.9 percent. The lowest percentages were found in Cantabria in the first interview, at 30.2 percent, and in Aragon in subsequent interviews, at 18.1 percent.

The **Unable to respond** incidence does not warrant any comment due to its small number of instances compared to refusals and absences.

Overall, the community with the highest total non-response percentage, both in the first interview as well as subsequent interviews, is again the Canary Islands, at 50.0 and 37.6 percent, respectively.

At the opposite extreme, the communities with the lowest non-response percentages were Cantabria in the first interview, at 31.6 percent, and Castile and León in subsequent interviews, at 19.2 percent.

Surveyable dwellings for the first interview

| Autonomous Communities | Total | Surveyed | | Non-response | | | | | | respond | |
| | | | | Total | | Refusals | | Absences | | | |
	No.	No.	%	No.	%	No.	%	No.	%	No.	%
National Total	8.156	4.956	60,77	3.200	39,23	113	1,39	3.067	37,60	20	0,25
01 Andalusia	760	431	56,71	329	43,29	10	1,32	316	41,58	3	0,39
02 Aragon	364	236	64,84	128	35,16	9	2,47	119	32,69	0	0,00
03 Asturias	400	238	59,50	162	40,50	9	2,25	151	37,75	2	0,50
04 Balearic Islands	355	180	50,70	175	49,30	4	1,13	169	47,61	2	0,56
05 Canaries	432	216	50,00	216	50,00	3	0,69	212	49,07	1	0,23
06 Cantabria	377	258	68,44	119	31,56	3	0,80	114	30,24	2	0,53
07 Castile and León	446	303	67,94	143	32,06	2	0,45	135	30,27	6	1,35
08 Castilla - La Mancha	435	251	57,70	184	42,30	6	1,38	177	40,69	1	0,23
09 Catalonia	709	422	59,52	287	40,48	7	0,99	279	39,35	1	0,14
10 Valencia	578	356	61,59	222	38,41	7	1,21	215	37,20	0	0,00
11 Extremadura	453	270	59,60	183	40,40	9	1,99	173	38,19	1	0,22
12 Galicia	510	321	62,94	189	37,06	6	1,18	183	35,88	0	0,00
13 Madrid	696	471	67,67	225	32,33	9	1,29	216	31,03	0	0,00
14 Murcia	389	198	50,90	191	49,10	16	4,11	174	44,73	1	0,26
15 Navarre	359	221	61,56	138	38,44	0	0,00	138	38,44	0	0,00
16 Basque country	433	284	65,59	149	34,41	8	1,85	141	32,56	0	0,00
17 La Rioja	367	238	64,85	129	35,15	5	1,36	124	33,79	0	0,00
18 Ceuta and Melilla	93	62	66,67	31	33,33	0	0,00	31	33,33	0	0,00

TABLE 2.3. *Surveyable dwelling distribution by autonomous communities.*
First interview

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Surveyable dwellings for subsequent interviews

Autonomous Communities	Total	Surveyed		Non-response						respond	
				Total		Refusals		Absences			
	No.	No.	%	No.	%	No.	%	No.	%	No.	%
National Total	15.427	11.522	74,69	3.905	25,31	121	0,78	3.772	24,45	12	0,08
01 Andalusia	1.419	980	69,06	439	30,94	4	0,28	433	30,51	2	0,14
02 Aragon	685	552	80,58	133	19,42	9	1,31	124	18,10	0	0,00
03 Asturias	763	582	76,28	181	23,72	7	0,92	173	22,67	1	0,13
04 Balearic Islands	710	492	69,30	218	30,70	5	0,70	213	30,00	0	0,00
05 Canaries	833	520	62,42	313	37,58	6	0,72	307	36,85	0	0,00
06 Cantabria	717	573	79,92	144	20,08	7	0,98	136	18,97	1	0,14
07 Castile and León	833	673	80,79	160	19,21	7	0,84	153	18,37	0	0,00
08 Castilla - La Mancha	811	611	75,34	200	24,66	5	0,62	195	24,04	0	0,00
09 Catalonia	1.304	954	73,16	350	26,84	17	1,30	332	25,46	1	0,08
10 Valencia	1.077	786	72,98	291	27,02	3	0,28	287	26,65	1	0,09
11 Extremadura	846	632	74,70	214	25,30	7	0,83	207	24,47	0	0,00
12 Galicia	935	732	78,29	203	21,71	10	1,07	191	20,43	2	0,21
13 Madrid	1.301	1.035	79,55	266	20,45	13	1,00	252	19,37	1	0,08
14 Murcia	745	509	68,32	236	31,68	1	0,13	235	31,54	0	0,00
15 Navarre	746	570	76,41	176	23,59	2	0,27	173	23,19	1	0,13
16 Basque country	874	675	77,23	199	22,77	11	1,26	187	21,40	1	0,11
17 La Rioja	659	529	80,27	130	19,73	7	1,06	122	18,51	1	0,15
18 Ceuta and Melilla	169	117	69,23	52	30,77	0	0,00	52	30,77	0	0,00

TABLE 2.4. Surveyable dwelling distribution by autonomous communities.
Subsequent interviews

A breakdown of incidents in the theoretical sample, for both the first interview and subsequent interviews, can be found in **table 3.** The percentages for inaccessible and non-surveyable dwellings have been calculated based on the total number of dwellings, while those for surveyed dwellings and non-responses have been calculated based on the number of surveyable dwellings.

In comparison with 2023, a decrease in inaccessible dwellings was observed in both the first interview and subsequent interviews, going from 11.2 and 9.6 percent, respectively, in 2023, to 10.7 and 7.1 percent in 2024. There was a decrease in the number of refusals, going from 2.2 percent in 2023 to 1.4 percent in 2024 in the first interview, and from 1.7 percent in 2023 to almost 0.8 percent in 2024 in subsequent interviews.

The most notable difference between the two types of interview was seen in total absences, as in the first interview they represented 37.6 percent of surveyable dwellings, while in subsequent interviews they represented 24.4 percent.

Incident type	Dwellings sample			
	First interview		Subsequent interview	
	No.	%	No.	%
Total	9.375	100,00	16.818	100,00
Inaccessible	1.005	10,72	1.194	7,10
Non-surveyable dwelling:	214	2,28	197	1,17
- Empty	192	2,05	176	1,05
- Previously selected	5	0,05	2	0,01
- Unreachable	0	0,00	0	0,00
- Other purposes	17	0,18	19	0,11
Surveyable dwelling:	8.156	100,00	15.427	100,00
- Surveyed	4.956	60,77	11.522	74,69
- Non-response:	3.200	39,23	3.905	25,31
- Total absence	3.064	37,57	3.769	24,43
- Absence of selected person	3	0,04	3	0,02
- Total refusal	113	1,39	119	0,77
- Refusal of selected person	0	0,00	2	0,01
- Unable to respond	20	0,25	12	0,08

TABLE 3. Breakdown of incidents in the theoretical sample

The remaining tables have been prepared based on the most up-to-date information from the **Sample Framework for Surveys Directed to the Population** *(Georeferenced Address Framework)* for non-response cases, both for the tables corresponding to the **first interview** and for the tables corresponding to **subsequent interviews**. All tables include the *Not specified* category, which includes dwellings not classified as primary family dwellings in the most current available framework.

The distribution of surveyable dwellings by number of household members can be seen in **tables 4.1 and 4.2**. For the calculation of household size, all individuals residing in the dwelling were considered, including those under 15 years old.

If we compare the distribution of the theoretical sample of surveyable dwellings with that of refusals in the **first interview** (table 4.1), it can be seen that there is a concentration of refusals primarily in two-member households. Regarding absences, it can be observed that there is a concentration of absences in households with 5 or more members.

| No. of members | Dwellings surveyable | | Sample effective | | Non-response dwellings | | | | | | | |
| | | | | | Total | | Refusals | | Absences | | respond | |
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Total	8.156	100,00	4.956	100,00	3.200	100,00	113	100,00	3.067	100,00	20	100,00
Not specified	107	1,31	0	0,00	107	3,34	1	0,88	106	3,46	0	0,00
1 member	2.415	29,61	1.531	30,89	884	27,63	36	31,86	839	27,36	9	45,00
2 members	2.386	29,25	1.510	30,47	876	27,38	36	31,86	835	27,23	5	25,00
3 members	1.489	18,26	951	19,19	538	16,81	22	19,47	514	16,76	2	10,00
4 members	1.181	14,48	743	14,99	438	13,69	11	9,73	426	13,89	1	5,00
5 or more members	578	7,09	221	4,46	357	11,16	7	6,19	347	11,31	3	15,00

***TABLE 4.1** Surveyable dwelling distribution by number of members.*
First interview

A similar analysis was made in table 4.2, but for **subsequent interviews**. A clear concentration of refusals can be seen in two-member households. Regarding absences, they are concentrated in households with 5 or more members.

| No. of members | Dwellings surveyable | | Sample effective | | Non-response dwellings | | | | | | | |
| | | | | | Total | | Refusals | | Absences | | Unable to resp. | |
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Total	15.427	100,00	11.522	100,00	3.905	100,00	121	100,00	3.772	100,00	12	100,00
Not specified	315	2,04	0	0,00	315	8,07	8	6,61	307	8,14	0	0,00
1 member	3.879	25,14	2.936	25,48	943	24,15	28	23,14	912	24,18	3	25
2 members	4.839	31,37	3.830	33,24	1.009	25,84	47	38,84	955	25,32	7	58,33
3 members	3.055	19,80	2.348	20,38	707	18,10	22	18,18	684	18,13	1	8,33
4 members	2.442	15,83	1.921	16,67	521	13,34	14	11,57	507	13,44	0	0,00
5 or more members	897	5,81	487	4,23	410	10,50	2	1,65	407	10,79	1	8,33

***TABLE 4.2** Surveyable dwelling distribution by number of members.*
Subsequent interviews

The following tables, both for the first interview (5.1, 6.1, and 7.1) and for subsequent interviews (5.2, 6.2, and 7.2) are tables of households classified based on the characteristics of the selected person within them, which, as previously mentioned, was obtained from the information in the **Georeferenced Address Framework**.

The tables include the distribution of the effective sample based on the different characteristics analysed, with the aim of observing the deviations it has undergone compared to the selected theoretical sample (surveyable dwellings).

In **table 5.1**, there is an analysis of the distribution of non-response **households in the first interview** from the theoretical sample, according to the age and sex of the selected person. By comparing with the distribution of people in surveyable dwellings, it is noticeable that refusals are concentrated in the *75 years old and over* range, while absences are mainly concentrated in the *26 to 35 years old* group.

Age	Theoretical sample												
	Dwellings surveyable		Sample effective		Non-response dwellings								
					Total		Refusals		Absences		Unable to respo	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Total	8.156	100,00	4.956	100,00	3.200	100,00	113	100,00	3.067	100,00	20	100,00
Not specified	107	1,31	0	0,00	107	3,34	1	0,88	106	3,46	0	0,00
16-25 years old	673	8,25	412	8,31	261	8,16	5	4,42	256	8,35	0	0,00
26-35 years old	841	10,31	464	9,36	377	11,78	14	12,39	362	11,80	1	5,00
36-45 years old	1.318	16,16	792	15,98	526	16,44	10	8,85	513	16,73	3	15,00
46-55 years old	1.507	18,48	948	19,13	559	17,47	11	9,73	548	17,87	0	0,00
56-65 years old	1.267	15,53	836	16,87	431	13,47	17	15,04	412	13,43	2	10,00
66-74 years old	1.037	12,71	646	13,03	391	12,22	24	21,24	366	11,93	1	5,00
75 years old and over	1.406	17,24	858	17,31	548	17,13	31	27,43	504	16,43	13	65,00
Total men	3.700	45,37	2.235	45,10	1.465	45,78	54	47,79	1.404	45,78	7	35,00
16-25 years old	350	4,29	203	4,10	147	4,59	4	3,54	143	4,66	0	0,00
26-35 years old	392	4,81	211	4,26	181	5,66	10	8,85	171	5,58	0	0,00
36-45 years old	615	7,54	351	7,08	264	8,25	4	3,54	258	8,41	2	10,00
46-55 years old	776	9,51	473	9,54	303	9,47	5	4,42	298	9,72	0	0,00
56-65 years old	605	7,42	394	7,95	211	6,59	7	6,19	203	6,62	1	5,00
66-74 years old	435	5,33	279	5,63	156	4,88	9	7,96	147	4,79	0	0,00
75 years old and over	527	6,46	324	6,54	203	6,34	15	13,27	184	6,00	4	20,00
Total women	4.349	53,32	2.721	54,90	1.628	50,88	58	51,33	1.557	50,77	13	65,00
16-25 years old	323	3,96	209	4,22	114	3,56	1	0,88	113	3,68	0	0,00
26-35 years old	449	5,51	253	5,10	196	6,13	4	3,54	191	6,23	1	5,00
36-45 years old	703	8,62	441	8,90	262	8,19	6	5,31	255	8,31	1	5,00
46-55 years old	731	8,96	475	9,58	256	8,00	6	5,31	250	8,15	0	0,00
56-65 years old	662	8,12	442	8,92	220	6,88	10	8,85	209	6,81	1	5,00
66-74 years old	602	7,38	367	7,41	235	7,34	15	13,27	219	7,14	1	5,00
75 years old and over	879	10,78	534	10,77	345	10,78	16	14,16	320	10,43	9	45,00

TABLE 5.1 *Surveyable dwelling distribution by age and sex of the selected person. First interview.*

In **table 5.2**, there is an analysis of the distribution of non-response households in **subsequent interviews** in the theoretical sample, according to the age and sex of the selected person. By comparing with the distribution of surveyable dwellings, it was observed that refusals were again concentrated in households where the selected person is *75 years old or over.* Regarding absences, they are mainly concentrated in the *26 to 35 years old* group.

| Age | Theoretical sample | | | | Non-response dwellings | | | | | | | |
| | Dwellings surveyable | | Sample effective | | Total | | Refusals | | Absences | | Unable to respond | |
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Total	15.427	100,00	11.522	100,00	3.905	100,00	121	100,00	3.772	100,00	12	100,00
Not specified	315	2,04	0	0,00	315	8,07	8	6,61	307	8,14	0	0,00
16-25 years old	1.270	8,23	916	7,95	354	9,07	8	6,61	346	9,17	0	0,00
26-35 years old	1.251	8,11	816	7,08	435	11,14	10	8,26	424	11,24	1	8,33
36-45 years old	2.418	15,67	1.789	15,53	629	16,11	10	8,26	619	16,41	0	0,00
46-55 years old	3.006	19,49	2.289	19,87	717	18,36	13	10,74	701	18,58	3	25,00
56-65 years old	2.598	16,84	2.050	17,79	548	14,03	17	14,05	530	14,05	1	8,33
66-74 years old	2.112	13,69	1.699	14,75	413	10,58	15	12,40	397	10,52	1	8,33
75 years old and over	2.457	15,93	1.963	17,04	494	12,65	40	33,06	448	11,88	6	50,00
Total men	6.887	44,64	5.242	45,50	1.645	42,13	50	41,32	1.587	42,07	8	66,67
16-25 years old	652	4,23	480	4,17	172	4,40	5	4,13	167	4,43	0	0,00
26-35 years old	617	4,00	418	3,63	199	5,10	6	4,96	193	5,12	0	0,00
36-45 years old	1.127	7,31	838	7,27	289	7,40	7	5,79	282	7,48	0	0,00
46-55 years old	1.450	9,40	1.089	9,45	361	9,24	4	3,31	354	9,38	3	25,00
56-65 years old	1.230	7,97	952	8,26	278	7,12	6	4,96	272	7,21	0	0,00
66-74 years old	891	5,78	726	6,30	165	4,23	6	4,96	159	4,22	0	0,00
75 years old and over	920	5,96	739	6,41	181	4,64	16	13,22	160	4,24	5	41,67
Total women	8.225	53,32	6.280	54,50	1.945	49,81	63	52,07	1.878	49,79	4	33,33
16-25 years old	618	4,01	436	3,78	182	4,66	3	2,48	179	4,75	0	0,00
26-35 years old	634	4,11	398	3,45	236	6,04	4	3,31	231	6,12	1	8,33
36-45 years old	1.291	8,37	951	8,25	340	8,71	3	2,48	337	8,93	0	0,00
46-55 years old	1.556	10,09	1.200	10,41	356	9,12	9	7,44	347	9,20	0	0,00
56-65 years old	1.368	8,87	1.098	9,53	270	6,91	11	9,09	258	6,84	1	8,33
66-74 years old	1.221	7,91	973	8,44	248	6,35	9	7,44	238	6,31	1	8,33
75 years old and over	1.537	9,96	1.224	10,62	313	8,02	24	19,83	288	7,64	1	8,33

TABLE 5.2 *Surveyable dwelling distribution by age and sex of the selected person. Subsequent interviews*

The distribution of non-response **households in the first interview**, based on the education level of the selected person, can be seen in **table 6.1**. In this table, individuals have been classified into the four main groups from the Census, as doing it at a higher level of disaggregation could be risky due to the coding system used in this administrative register, which in many occasions does not allow to determine a clear distinction of each person's specific education level.

| Education level | Theoretical sample | | | | Non-response dwellings | | | | | | | |
| | Dwellings surveyable | | Sample effective | | Total | | Negative | | Absence | | Unable to respond | |
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Total	8.156	100,00	4.956	100,00	3.200	100,00	113	100,00	3.067	100,00	20	100,00
Education level not documented	148	1,81	0	0,00	148	4,63	1	0,88	147	4,79	0	0,00
Cannot read or write	291	3,57	253	5,10	38	1,19	1	0,88	37	1,21	0	0,00
Qualifications below school level	1.608	19,72	766	15,46	842	26,31	35	30,97	795	25,92	12	60,00
School graduate or equivalent	2.238	27,44	1.085	21,89	1.153	36,03	44	38,94	1.102	35,93	7	35,00
vocational training or equivalent, or higher	3.871	47,46	2.852	57,55	1.019	31,84	32	28,32	986	32,15	1	5,00

TABLE 6.1 *Surveyable dwelling distribution by education level of the selected person. First interview*

By comparing the distribution of non-responses with those of individuals in surveyable dwellings, it was observed that refusals and absences were concentrated in the groups of people with *Qualifications below school level* or *School graduate or equivalent*.

| Education level | Theoretical sample | | | | Non-response dwellings | | | | | | | |
| | Dwellings surveyable | | Sample effective | | Total | | Negative | | Absence | | Unable to respond | |
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Total	15.427	100,00	11.522	100,00	3.905	100,00	121	100,00	3.772	100,00	12	100,00
Education level not documented	367	2,38	0	0,00	367	9,40	10	8,26	357	9,46	0	0,00
Cannot read or write	548	3,55	499	4,33	49	1,25	2	1,65	46	1,22	1	8,33
Qualifications below school level	2.629	17,04	1.815	15,75	814	20,85	26	21,49	782	20,73	6	50,00
School graduate or equivalent	3.859	25,01	2.517	21,85	1.342	34,37	44	36,36	1.296	34,36	2	16,67
vocational training or equivalent, or higher	8.024	52,01	6.691	58,07	1.333	34,14	39	32,23	1.291	34,23	3	25,00

TABLE 6.2 *Surveyable dwelling distribution by education level of the selected person. Subsequent interviews*

In the case of **subsequent interviews (table 6.2)**, when comparing with the distribution of surveyable dwellings, it can again be seen that refusals and absences are mainly concentrated in households where the selected person has *Qualifications below school level* or is a *School graduate or equivalent*.

The distribution of surveyable dwellings according to the nationality of the selected person for households in the **first interview** can be seen in **table 7.1**. In comparison with the distribution of individuals in surveyable dwellings, it was observed that refusals are concentrated in the *Spanish nationals* group, while absences are concentrated in the *Dual nationality* group.

| Nationality | Theoretical sample | | | | Non-response dwellings | | | | | | | |
| | Dwellings surveyable | | Sample effective | | Total | | Negative | | Absence | | Unable to respond | |
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Total	8.156	100,00	4.956	100,00	3.200	100,00	113	100,00	3.067	100,00	20	100,00
Nationality not documented	107	1,31	0	0,00	107	3,34	1	0,88	106	3,46	0	0,00
Spanish	7.193	88,19	4.523	91,26	2.670	83,44	103	91,15	2.552	83,21	15	75,00
Dual nationality	682	8,36	259	5,23	423	13,22	9	7,96	409	13,34	5	25,00
Foreign	174	2,13	174	3,51	0	0,00	0	0,00	0	0,00	0	0,00

TABLE 7.1 *Surveyable dwelling distribution by nationality of the selected person. First interview*

In **subsequent interviews (table 7.2)**, it was observed that refusals were slightly concentrated in the *Nationality not documented* group, while absences were concentrated in both this group and the *Dual nationality* group.

Nationality	Theoretical sample											
	Dwellings surveyable		Households surveyed		Non-response dwellings							
					Total		Negative		Absence		Unable to respond	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Total	15.427	100,00	11.522	100,00	3.905	100,00	121	100,00	3.772	100,00	12	100,00
Nationality not documented	315	2,04	0	0,00	315	8,07	8	6,61	307	8,14	0	0,00
Spanish	13.890	90,04	10.735	93,17	3.155	80,79	106	87,60	3.038	80,54	11	91,67
Dual nationality	879	5,70	444	3,85	435	11,14	7	5,79	427	11,32	1	8,33
Foreign	343	2,22	343	2,98	0	0,00	0	0,00	0	0,00	0	0,00

***TABLE 7.2** Surveyable dwelling distribution by nationality of the selected person. Subsequent interviews*

Regarding the distribution of non-responses by relationship with the person's activity, it has not been possible to create a table, as was the case in previous occasions, due to the fact that the *relationship with the person's activity* characteristic is not collected in the Census.

Table 8 shows the percentage distribution by relationship with the selected person's activity for both first and subsequent interviews in the households from the effective sample.

| Relationship with the ac | Surveyed dwellings | | | |
| | First interview | | Subsequent interviews | |
	No.	%	No.	%
Total	4.956	100,00	11.522	100,00
Not specified	619	12,49	1.203	10,44
Employed	2.151	43,40	4.993	43,33
Unemployed	216	4,36	536	4,65
Student	18	0,36	39	0,34
Housework	365	7,36	808	7,01
Pensioner	278	5,61	653	5,67
Other situation	1.309	26,41	3.290	28,55

***TABLE 8**. Effective sample distribution by relationship with the selected person's activity*

III Estimation of the Differential Non-Response Correction Coefficient by Nationality

The differential non-response correction coefficient is a measure of the different behaviour of sample groups in relation to non-responses. Specifically, it is the ratio of the inverse of the response probability in each group. If it is close to one, it indicates that both groups have a similar behaviour. Values greater than one represent higher non-responses in the numerator group, while values below one indicate higher non-responses in the denominator group.

To carry out the estimation, the theoretical sample of dwellings has been broken down into surveyed dwellings (effective sample) and incidents. The latter have been divided into dwelling-related incidents (or frame-related incidents) and household-related incidents.

The initial approach was to separate the dwellings, both surveyed and those with any type of incident, into two groups:

– Dwellings with at least one foreigner

– Dwellings without foreigners

To carry out this breakdown, the nationality of the person was used, which was obtained from the GAF (Georeferenced Address Framework).

Horizontal percentages have been calculated (relative to the total number of dwellings in the theoretical sample with nationality, relative to the total of each type of incidence, and relative to the total effective sample), as well as **vertical percentages** (relative to the theoretical sample with nationality within each group of dwellings), for both dwellings where only Spanish nationals live and those with at least one foreigner.

The estimation of the differential non-response correction coefficient was calculated considering the theoretical sample in four different ways:

– With all: theoretical sample = effective sample + all incidents

– With refusals: theoretical sample = effective sample + refusals

– With absences: theoretical sample = effective sample + absences

– With refusals and absences: theoretical sample = effective sample + refusals+ absences

Table 9 presents the obtained results. Firstly, it was observed that dwellings with at least one foreigner represent 8.0 percent of the total dwellings in the effective sample.

Other important facts worth highlighting are:

– The percentage of **empty dwellings** is very similar in both types of dwellings, dwellings with at least one foreigner and dwellings in which only Spanish nationals reside.

– **Inaccessible dwellings** were more numerous percentage-wise in those dwellings with at least one foreigner (21.6 percent) than in those where only Spanish nationals reside (5.9 percent).

– Regarding **absences**, their percentage was higher in dwellings with at least one foreigner (41.1 percent).

– The **refusal** percentage was lower in dwellings with at least one foreigner (0.8 percent).

- As usual, the percentage of **surveyed dwellings** is higher in dwellings where only Spanish nationals reside (67.7 percent).

- The *refusals / (refusals + effective sample)* ratio is more than nine tenths lower in the group of dwellings where only Spanish nationals reside.

- Regarding the *(refusals + absences) / (refusals + absences + effective sample)* ratio, the difference is much greater (almost twenty-nine points higher in dwellings with at least one foreigner).

- As for the estimation of the **differential non-response correction coefficient**, it was observed that it moves further away from one when the theoretical sample is considered to be the sum of the effective sample and all incidences, or when only taking refusals into account. Conversely, it reaches the lowest value when the theoretical sample is considered to be the effective sample plus the absences.

Dwellings	Total	Dwellings with at least a foreigner			Dwellings only with Spanish nationals		
			% hori- zontal	% verti- cal	Total	% hori- zontal	% verti- cal
Total incidents	26.193						
Nationality not documented	862						
-Incidents involving nationality	25.331	2.035	8,03	100,0	23.296	91,97	100,0
Inaccessible	1.827	440	24,080	21,62	1.387	75,92	5,95
In scope:							
- Empty	305	29	9,510	1,43	276	90,49	1,18
- Other purposes	31	4	12,900	0,20	27	87,10	0,12
- Previously selected	7	1	14,290	0,05	6	85,71	0,03
- Unreachable	0	0	0,000	0,00	0	0,00	0,00
In households:							
- Absences	6.426	836	13,010	41,08	5.590	86,99	24,00
- Refusals	225	16	7,110	0,79	209	92,89	0,90
- Unable to respond	32	6	18,750	0,29	26	81,25	0,11
- Surveyed (effective sample)	16.478	703	4,270	34,55	15.775	95,73	67,72

TABLE 9. *Incidents in the theoretical sample by nationality of the people residing in the dwellings.*

	Ratios	
		%
Neg. Foreigners in theoretical sample	16	2,23
Total foreigners (effective sample + n·	719	
		%
Neg. Spanish nationals in theoretical s	209	1,31
Total Spanish nationals (effective sam	15.984	

		%
Neg. + Abs. foreigners in theoretical s	852	54,79
Total foreigners (effective sample + ne	1.555	

		%
Neg. + Abs. Spanish nationals in theor	5.799	26,88
Total Spanish nationals (effective samp	21.574	

Coefficient estimation (non-response differential propensity)

	With all	With refusals	With absences	With refusals and abs.
Vxt (dwellings with foreigners, theore·	2.035	2.051	2.871	2.887
Vxr (dwellings with foreigners, effecti·	703	719	1.539	1.555
Vyt (dwellings with Spanish nationals,	23.296	23.505	28.886	29.095
Vyr (dwellings with Spanish nationals,	15.775	15.984	21.365	21.574
Estimated value (Vxt/Vxr)/(Vyt/Vyr)	1,96	1,94	1,38	1,38