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**Measuring the number of food aid recipients**

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## Measuring the number of food aid recipients

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### Abstract

Respondents to typical household surveys tend to significantly underreport their potential use of food aid distributed by associations. This underreporting is most likely related to the social stigma felt by people experiencing great financial difficulty. As a result, survey estimates of the number of recipients of that aid are much lower than the direct counts from the associations. Those counts tend to overestimate due to double counting. Through its adapted protocol, the *Enquête Aide alimentaire* (EAA) collected in late 2021 in France at a sample of sites of food aid distribution associations, controls the biases that affect the other sources and determines to what extent this aid is used.

Keywords: Food aid; underreporting bias; complex sampling

### 1. Introduction

#### 1.1 The number of food aid recipients: a disputed figure

Throughout the year in France, many associations distribute food aid at several thousand distribution sites to many people in financial difficulty.

The aid takes three main forms: distribution of packages of food products to be prepared at home; social grocery store (with rates ranging from 10% to 30% of market prices); and distribution of prepared meals for immediate consumption. With some exceptions, the sites are open between one and six days a week, and people can go whenever they wish or by appointment. About half the sites rely on national community-based charity networks (*Restos du coeur*, *Secours populaire*, etc.). The other sites are independent local initiatives, often supplied by food banks.

The number of recipients is the subject of debate, and sometimes of controversy.<sup>2</sup> Until today in 2022, only two statistical sources were available for estimating this number: data from the different associations that distribute the aid, and some public statistical household surveys. These two sources clearly differ:

- If we sum the numbers from the associations, there are about 5 million recipients per year.
  - The household surveys count at most 1.5 million recipients (some surveys even finding barely 1 million)!
- The field differences account for a variance of up to 500,000 recipients.

#### 1.2 Limitations of the sources

It is even more difficult since each source has serious limitations:

- (i) The data from the associations are collected by each one independently. Therefore, the total of 5 million could very well contain double counting. Moreover, we are also unsure as to whether all the associations actually count exactly the same thing the same way.<sup>3</sup>
- (ii) Household surveys have two major flaws:

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<sup>2</sup> [https://www.liberation.fr/checknews/y-a-t-il-2-millions-de-beneficiaires-des-aides-alimentaires-comme-le-dit-bfm-ou-8-millions-comme-le-dit-melenchon-20211001\\_HIVHRKUCCJDANP63PNXGIEQXI/](https://www.liberation.fr/checknews/y-a-t-il-2-millions-de-beneficiaires-des-aides-alimentaires-comme-le-dit-bfm-ou-8-millions-comme-le-dit-melenchon-20211001_HIVHRKUCCJDANP63PNXGIEQXI/)

<sup>3</sup> For example, for some associations, the figures provided include all people assisted, not just food aid recipients.

ii.1 They cover only households in regular dwellings. As a result, others are missing: collective households and homeless people. However, these people are represented among food aid recipients.

ii.2 Household surveys identify recipients based on their response to a retrospective question.<sup>4</sup> Therefore, they rely entirely on the respondent's sincerity in answering this question. However, we could initially suspect that it may be hard to admit financial distress to the point of not being able to feed one's family. Hence, there could very well be underestimation, possibly a substantial amount.

Until now, it was impossible to decide between these different assumptions and determine the extent of these different potential biases. In June 2022, the results of the food aid survey “Enquête sur l'aide alimentaire” (EAA) were published. This survey was conducted between November 15 and December 10, 2021 by INSEE (Accardo et al. 2022). The survey results provide detailed information on the recipients' characteristics for metropolitan France only. They also shed light on their numbers and tend to confirm the existence of substantial reporting bias.

### **1.3 The Food Aid Survey (“Enquête sur l'aide alimentaire”) (EAA)**

To avoid the three issues of double counting, lack of coverage, and underreporting, the EAA surveyed the associations' distribution sites directly. The protocol consisted of a two-phase survey based on the sampling of French homeless surveys (Marpsat and Yaouancq 2016): selecting a sample of sites (and a survey day on site); then at each selected site, a random sampling of about 20 people from among the *users*, i.e., the people who came to the site that day to seek aid for their household. A brief questionnaire (about 60 questions) was administered to each respondent. The questions were on their sociodemographic characteristics, living conditions, how they use the aid, their opinions on their situation, etc.

For various logistical reasons, this survey—the first of its kind in France—had to be prepared in less than five months, starting from almost nothing. While the operation went smoothly overall, the very short timeframe in relation to the scale of the tasks involved meant that many stages had to be simplified, at the cost of a number of weaknesses which are explained below. The results of the Food Aid Survey must be interpreted with caution and considered experimental in nature.

## **2. Sampling the sites**

### **2.1 Frame for the sites**

When survey preparation began in June 2021, we did not have a survey frame for the distribution sites. It had to be developed in less than four weeks using the lists of centres of the Ministry of Health and Solidarity and lists of the networks of associations involved in the food aid sector. A total of 7,902 sites were identified, a size considered plausible by the associations and the government. Without any aspects suggesting lack of coverage, the frame's completeness was accepted.

The newness of this frame was a concern; the survey showed that it was relatively good, with fewer than a dozen of the 300 sites sampled that turned out to be permanently closed. However, a fraction of them (about 10%) were still operational, but occasionally inactive over the 25 days of collection.

Additional information about the sites was collected to enhance the frame, including the type of aid provided (parcel, social grocery store, meals) and the average weekly number of users coming to the site. The first seemed to be relatively strong. However, the average number of users, or the “size” of the site, proved to be too unreliable in the survey.

### **2.2 A three-stage site survey**

The only sites that could be surveyed were those in a “master sample” zone, i.e., a subset of the 36,000 French communes combining those assigned to an INSEE interviewer.

In determining the sites in the master sample, the following problem was encountered: the address of the sites was based on the postal code, whereas the master sample identifies the communes using the “INSEE commune code,” a

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<sup>4</sup> “In the past 12 months, has your household received food packages? Free meals? Or did it shop at a social grocery store?” [translation]

finer index. Finding the right commune code among all those associated with a given postal code requires an assessment of the specific address of the site. This is a time-consuming task. In the time available, only 6,924 sites were able to be accurately located. Of these, 1,911 were in a master sample zone.

Of those sites, a main sample of 300 sites and a reserve of 100 sites were selected. These two samples were stratified into eight strata (essentially based on the network they belong to). The reserve was ultimately activated in only 3 strata representing 30 sites, so the initial sample included 330 sites.

Of these 330 sites, 235 (71%) were actually surveyed. The ones that were not surveyed were because of decisions by INSEE's management faced with local interviewers not being available as well as insufficiently detailed information in the survey frame, which made it impossible at the outset to exclude the sites that were inactive for some reason at the time of the survey, as well as sites that, for various reasons, had to be categorized as out of scope. Therefore, almost all the non-response of sites can be ignored in the sense that its causes are not initially related to what the survey aims to measure (i.e., the number and characteristics of users).

**Table 2-1  
Summary of the site sampling**

Survey frame = 7,902 distribution sites			
(a) – Sites accurately located = 6,294			
(b) – Sites in a zone with an interviewer ("master sample") = 1,911			
(c) – Sites sampled = 330			
Not open during the survey period or out of scope	Refusal by the site managers	Dropped by INSEE due to lack of survey method	Sites surveyed
44	6	45	235

The weight of a site is calculated by compiling the three stages presented in Table 2.1:

- (a) The restriction to only those sites where the commune code could be determined is seen as a random draw in the survey frame.
- (b) The selection of only sites in the master sample involves the probabilities established by INSEE for constructing the master sample.
- (c) Selecting the sites themselves: to control the great dispersion of site sizes (some sites receive only a dozen users per week, others several thousand users), the selection probability of the latter was taken in proportion to the size of the centre (self-weighted survey) to ensure as uniform a final weight of users as possible. That choice, entirely reasonable at the outset, unfortunately proved to be quite disastrous because of the unreliability of size of the sites in the survey frame (see below).

The final weight of the sites was eventually recalibrated to find the number of sites per stratum in the frame.

### 3. Sampling users

At sites that distribute packages, and even at social grocery stores, the aid is most often conditional on the financial situation of the users, who must therefore register. As such, there are in principle lists of users for those sites. This is not usually the case for the meal distribution sites, which are for the most part unconditional. In all cases, the associations consider these lists confidential, and therefore it was impossible to use them to sample users.

Another approach had to be taken, based on sampling in homeless surveys (see above):

- A pre-survey (conducted in September 2021) of the 330 sites sampled in the first phase was able to collect the necessary information about the type of distribution provided, the weekly business days, the attendance based on the day.
- Then, at a given site, a day of the week is drawn (among the business days). The interviewers go to the site that day, equipped with selection tables tailored to the anticipated attendance. They sample 20 users, with a uniform probability among those visiting the site throughout the day.

The probability of a user being selected (conditional on the site) will therefore depend on the number of business days in the week, the number of users present on the day of the survey (and evidently their willingness to participate). A survey respondent's final weight is the product of this conditional weight and the weight of the site from which they were surveyed. Let  $\pi^0$  be the mean value of the distribution of the weights of the 4,515 respondents. The total of those weights is, in theory, the number of food aid users in an average week during the survey period. It should be noted that since the use of food aid is usually regular, at least over a period of several weeks, this total equals the total users during the survey period (November 15 to December 10).

At this stage, this estimate of the total is inaccurate. Weight sharing is required to account for:

(i) the frequency of the user's visits. This is a very important point since more than half of users go to the sites less than once a week. Including the visit frequency (which is information collected in the questionnaire) increases the average weight (and therefore also the weekly total of users) by 60%:  $\pi^1 = 1.6\pi^0$ .

(ii) other sites that the user may visit. As before, it is necessary to use the information collected from the respondent about their potential multiple visits to calculate the weight sharing in order to control the potential double counting. Its impact is decidedly weaker due to the relatively small share of multi-users (15% of respondents): the average weight is reduced by only 10%:  $\pi^2 = 0,9\pi^1$ .

#### 4. A widely dispersed final weighting

By construction, the conditional weight at a respondent's site is even greater because attendance at the site where they are surveyed is significant. Drawing the sites based on a probability proportional to their attendance was specifically chosen to offset this effect and thus get closer to a final weighting that was as uniform as possible. The size in the survey frame that determines the probability of site selection must be at least about the same as what was actually observed during the survey. Unfortunately, this was not the case for about one-tenth of the sites. In contrast to the intended compensation, what occurs instead is an increase in the already high weights or a reduction in the already low weights. Thus, the final dispersion is stronger than both the dispersion of the site weights and that of the conditional weights. We note that it is most likely higher than those typically seen in household surveys. This dispersion leads to low accuracy in the survey estimates, especially in the estimate of the number of recipients.

**Table 4-1**  
**Dispersion indicators for the survey weight distribution in the EAA**

Dispersion characteristics of the weight distributions				
	99th percentile over 1st percentile	90th percentile over 10th percentile	Coefficient of variation	Gini coefficient
Site weighting (1)	125	16	118	0.51
Users – site-conditional weighting (2)	51	12	121	0.51
Users - final weighting (1) x (2)	277	22	175	0.63

#### 5. Estimated number of recipients

The EAA surveyed French-speaking users and estimates 1,166,000 users for an average week of the survey period. That figure is very consistent with the one derived from the assessments of average attendance collected from the managers at the sites surveyed, namely 1,290,000 users.

The survey accuracy of this estimate is especially tricky to assess. An approximate method based on bootstrap evaluation of the sampling process (essentially of the first phase), then corrected by applying a selected design effect equal to 2, which seems to be a plausible value, results in an accuracy of  $\pm 100,000$  people.

Even though the EAA did not interview non-francophone users, it makes it possible to obtain an order of magnitude of their number, namely 160,000 people. The accuracy of that estimate is very difficult to calculate. At first glance, it is not as good as the previous one. Conservatively, and without being able to strictly derive that value, we assess it at  $\pm 20,000$  people. In total, this would mean 1.3 million users (francophone and non-francophone) within  $\pm 120,000$ .

Users who go to a parcel distribution site or a social grocery store must be registered there. Those who go to meal distributions sites have, in theory, more flexibility; in practice, their situation, which is particularly difficult, is rarely temporary. Under those conditions, a site's users usually renew in advance only slowly, and it can therefore be considered that the average number of users in a given week of the survey period is not much different from the total number of users during the survey period. Over a longer period, however, the user turnover is greater. Statistical sources are not available for accurately estimating the turnover rate, but based on information collected from large associative networks, it can be estimated at 6.5% per quarter (Accardo et al. 2022). Under this assumption, the total number of users in 2021 was 1.6 million.

If we assume that in most user households, only one person is responsible for the task of going to the sites to receive the food aid, an assumption suggested by the survey field and the experience of the association managers,<sup>5</sup> we can go from the number of users to the number of recipients by multiplying by the users' household size. This results in 3.8 million recipients in 2021, within  $\pm 350,000$  people.

Typical household surveys conducted by the INSEE lead to much more reliable estimates: according to the survey *Statistique sur les ressources et les conditions de vie* (SRCV)<sup>6</sup> conducted in 2021, there are at most 1.5 million recipients of food aid as defined herein (i.e., parcel, social grocery store or meal) over 12 months. As for the *Enquête de conjoncture auprès des ménages mensuelle* (CAMME), the number of recipients fluctuates from 0.8 million to 1.6 million, depending on the survey edition. That figure only covers individuals from households living in regular dwellings. To that number must be added the recipients living in collective housing or a hotel or those who are homeless, roughly 400,000 people, according to the EAA.

These levels are implausible; the only *Restos du coeur* association that, according to the EAA, represents 30% of the recipients, indicates 1.2 million recipients in one year.<sup>7</sup> Since all the users of that association are registered and tracked by the association, this figure is, in principle, free of double counting. It is not consistent with the estimates from the SRCV or CAMME, given the low proportion of multi-users (15%, see above) observed by the EAA.

**Table 5-1**  
**Annual number of food aid recipients by source**

Source	Annual number of recipients (millions)
Food aid information system (= from the associations)	5
<i>Restos du coeur</i> (1/4 of the sites) – 2020/2021 annual report	1.2
Survey – households	(+ field add-on)
SRCV (SILC) 2021	1.5 + 0.4
Enquête Conjoncture (CAMME) April, June, Sept., Dec. 2021	0.8 to 1.6 + 0.4
Enquête Aide alimentaire (with 6.5% quarterly turnover)	3.8

## 6. Conclusion

Despite its limitations and methodological limitations, the EAA manages to highlight a strong trend of underreporting of this use by food aid users surveyed by the usual household surveys. This underreporting is quite naturally explained by the social stigma associated with needing assistance to meet a basic need. Once again, the EAA is illuminating: 45% of users indicated that they hesitated before resorting to food aid. Two-thirds indicating feeling ashamed.

**Table 6-1**  
**Hesitation to resort to food aid (%)**

<sup>5</sup> The EAA can confirm that in 7 out of 10 cases for heterosexual couples, it is the woman who is the user from the household.

<sup>6</sup> The French version of the European panel survey Statistics on Income and Living Conditions (SILC).

<sup>7</sup> Restos du coeur, 2020/2021 annual report. See p. 7. The report is available at [https://www.restosducoeur.org/wp-content/uploads/2016/04/ra\\_2020-2021\\_partie-0ouverture.pdf](https://www.restosducoeur.org/wp-content/uploads/2016/04/ra_2020-2021_partie-0ouverture.pdf).

<b>Did you hesitate before resorting to that food aid the first time?</b>		<b>What reason(s) made you hesitate?</b>	
Yes, a little	25	You didn't know where to find that aid	12
Yes, for a long time	18	You didn't know if you were entitled to it	29
		You didn't have time	2
		You were embarrassed, ashamed	64
		Other	2
No	55		
Non-response	2		

Conversely, the EAA shows that bias due to double counting in the estimates drawn from the associations' data is relatively low. The large difference with the EAA that remains (of about 1 million recipients) suggests that these data likely include recipients of benefits other than just the forms of food aid distribution considered by the survey.

## **References**

Accardo A., A. Brun and T. Lellouch. 2022, "La crise sanitaire a accentué la précarité des bénéficiaires de l'aide alimentaire," *France Insee Première N°1907, June 2022*, INSEE.

Accardo A., A. Brun and T. Lellouch. 2022, "Les bénéficiaires de l'aide alimentaire, pour beaucoup parmi les plus pauvres des pauvres," to be published in *France Portrait Social 2022*, INSEE.

Marpsat M. and F. Yaouancq. 2016, "Avant-propos. L'enquête *Sans-Domicile* 2012 : histoire et place en Europe," *Economie et Statistique Année 2016* 488-489 pp. 7-23.