

Livelihoods and the Allocation of Emergency Assistance after the Haiti Earthquake

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Abstract

In this paper, a unique post-earthquake survey designed to provide a rapid assessment of food insecurity in Haiti is used in order to see how adequately emergency assistance programs have been allocated. When modelling the impact of various covariates upon assistance allocation, the location of households emerges as the main criterion. This helps to explain why, five months after the quake, government and agencies still seemed unable to provide an efficient allocation of emergency assistance. What is more, those who benefited less from assistance appeared to be on the one hand families headed by women and on the other hand households

with disabled members: this obviously runs counter to an “optimal” targeting that would make the most vulnerable ones eligible for assistance in priority. Furthermore, the fact that associations may favour assistance allocation is an interesting result that should be considered further. It is also found that asset losses had no significant impact on the food consumption score, whereas household pre-earthquake wealth did. This result demonstrates that the impact of the shock has been buffered when households had previously enforced coping strategies, regardless of the effects of emergency assistance programs.

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Livelihoods and the Allocation of Emergency Assistance after the Haiti Earthquake

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1. Introduction

This post-earthquake assessment of emergency assistance programs follows up on a previous assessment of the impact of assistance operations on food security² that used the first Rapid Emergency Food Security Assessment (EFSA I) survey which was conducted in mid-February 2010 by the CNSA in collaboration with its main partners (ACF, FEWS-Net, Oxfam GB, FAO, UNICEF and WFP).³

Three weeks after the earthquake, a random 933-household survey was conducted on the population in the disaster areas. The questionnaire examined food insecurity and livelihoods.⁴ Food and non food emergency assistance was thus assessed in the wake of the earthquake.

Based on this unique survey, a first assessment examined how assistance programs were allocated in Haiti, looking at the households' specific characteristics. The survey evaluated that between 30% and 50% of the houses were destroyed and that 31% of the households were experiencing limited or severe food insecurity (22% and 9% respectively), that is a nearly double the food insecurity prevalence observed before the earthquake.^{5,6} At that early point, we also conducted an analysis of assistance allocation after the earthquake. Despite the fact that food assistance was not specifically targeted yet at the time of the survey, our results show that individuals staying in camps had a significantly greater probability of accessing assistance, especially food assistance. This entails that food assistance was likely to reach food insecure people, as the poorest households were either forced or had little choice but to move to these camps.⁷ What is more, it appears that household food insecurity after the earthquake was more connected to pre-earthquake household wealth than to asset losses experienced by households after the quake.⁸ Hence, it appears that households were able to partly buffer the impact of the shock. Nevertheless, it was not possible with our setting to isolate the impact of food assistance

² Cf. Echevin (2010).

³ Cf. CNSA (2010a).

⁴ More precisely, the questionnaire collected information on mortality, displacements and housing damages, income sources and durable goods before and after the earthquake as well as food consumption and other expenses, agricultural activities, survival strategies and the nutritional status of children.

⁵ Cf. CNSA (2010b).

⁶ Based on a random survey in Port-au-Prince, Kolbe et al. (2010) have shown that 18.6% of all households were experiencing *severe* food insecurity six weeks after the earthquake. They also estimated that 24.4% of the respondents' homes had been completely destroyed by the quake.

⁷ People were *de facto* poorer and more food insecure in camps according to February 2010 survey.

⁸ Household wealth is proxied by an asset index, obtained from a multiple component analysis using housing characteristics and household durable goods.

on food insecurity.⁹ Alternative household behaviors (e.g., receiving aid from family or friends, selling assets or using savings, etc.) also played an important role in buffering the impact of the disaster on household food consumption.

In order to assess the level of food insecurity after the earthquake and to learn more about the efficiency of emergency assistance programs and coping strategies, a second Rapid Emergency Food Security Assessment (EFSA II) survey was conducted in June 2010 by the CNSA and its partners. The survey methodology is similar to the previous one (EFSA I). Several features of this second survey are worth noting. First, although five months had passed since the earthquake, the distributions of pre-earthquake declared wealth—as obtained from both EFSA surveys (February and June surveys)—appear to be very similar. This suggests small recall bias. Second, as households were interviewed long enough after the disaster, the role of assistance programs and the dynamics of poverty can be better assessed. Indeed, we can assess, on the one hand, whether households are better off in June than in February and, on the other hand, whether assistance programs and other strategies have played a role in this recovery. Third, information on households in non-directly affected areas enables us to assess how the hosting of displaced people has impacted households.

According to these surveys, in the directly affected areas, food insecurity has dropped from 31% in February to 27% in June. In this paper, we will use the June survey in order to focus on how adequately assistance is allocated.

Prior to the 2010 earthquake, Haiti was already plagued by chronic poverty: over than three quarters of the population lived in poverty-ridden conditions and one half earned less than one dollar per day. Nearly half of the population had no access to healthcare services, and 58 percent did not have access to drinking water. Furthermore, risks are widespread in Haiti, as people regularly face various forms of covariate shocks—such as increases in food prices, hurricanes, floods, droughts and irregular rainfall—as well as a number of idiosyncratic shocks such as human or animal diseases¹⁰, casualties or death of a household member.

In the wake of the 2010 earthquake, Hurricane Tomas, the cholera epidemic, the rising prices of basic foodstuffs, and the socio-political uncertainty following the election results of

⁹ One explanation is that, at the time of the February survey, households who got aid shared with those who did not. So, this may muddy the observed relationship between the food consumption score and access or not to food assistance.

¹⁰ Haiti has had several covariate shocks on animal and plant diseases in recent history. However, declaration of households concerned here their own animals.

November 28, 2010, are, among others, some major factors likely to further deteriorate living conditions in Haiti.

Hence, in the absence of insurance protection or of suitable coping strategies, households are bound to be very vulnerable to all types of shocks. As a consequence, assessing the targeting efficiency of assistance efforts appears crucial. However, as pointed out by Morris and Wodon (2003), the answer to the question of whether assistance programs are well allocated depends on what is meant by a good allocation. Indeed, in the wake of such disaster, it may still be difficult to target the poorest and the most vulnerable: first, operating conditions have made it particularly hard for the various humanitarian agencies and NGOs to reach them; also, huge populations have flocked out of disaster-stricken areas or lost their homes, and taken refuge either in the neighborhood or in makeshift camps and settlements. Fortunately, national authorities and international organisations help situating those spots where thousands of refugees live, which is instrumental in targeting the Poorest. Selecting the poor and food insecure households in those settlements provides the possibility to allocate emergency aid—at least in the short term—although this way of targeting the Poor may not be the most efficient one. Notably, using household characteristics to target the poorest and most vulnerable people in Haiti should be considered.

In the context of a further stage in the operations, even though it seems possible for authorities to target aid so as to reach poorer households or households who have suffered major losses (note that the two groups need not be the same, since the extent of the losses tends to be positively correlated with wealth), the nature of emergency assistance often makes it difficult to allocate aid among beneficiaries along a differentiated pattern. More particularly, among those with access to emergency aid (which comprises medicine, clothes, food etc.), the most food-insecure should be allocated food aid first.

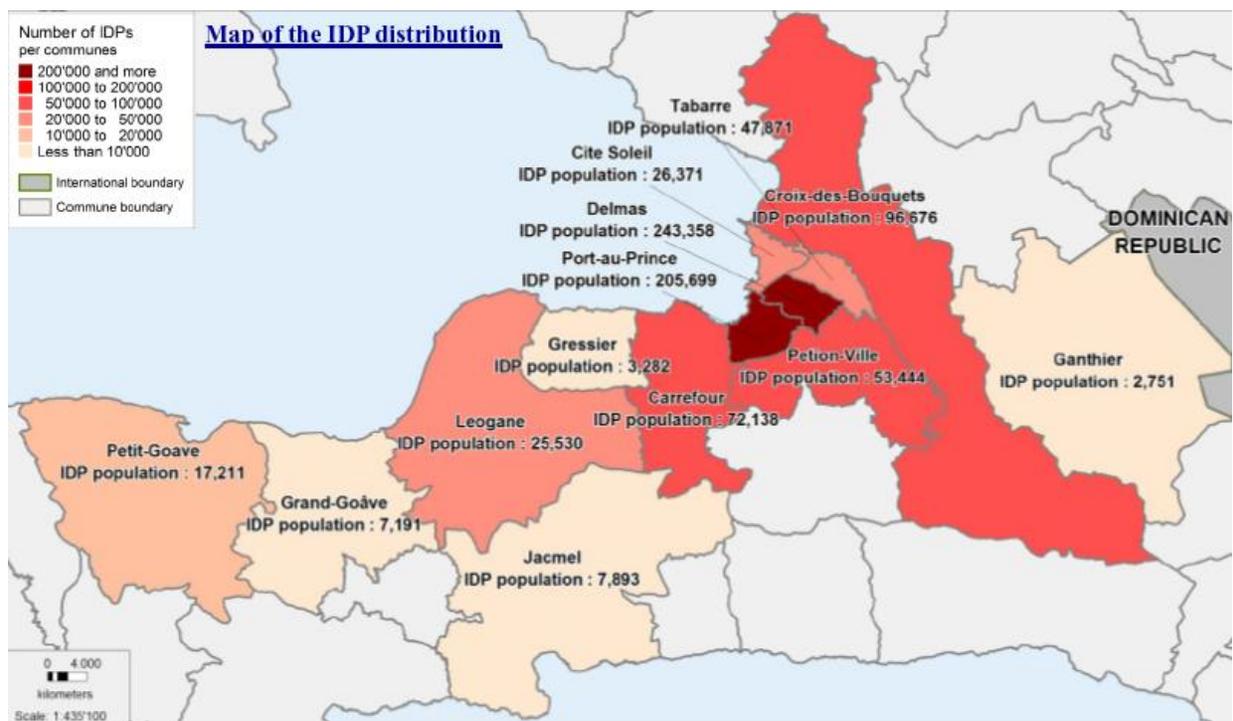
The paper is organized as follows. The second section presents the context in Haiti after the earthquake. Section three introduces the methodological framework. Section four presents the data sources and some empirical results. Section five provides regression results. The last section discusses the results and concludes.

2. Context

On January 12th, 2010, a magnitude 7.0 earthquake struck Haiti. It was the most powerful in over 200 years, causing thousands of Haitians to be killed, injured, homeless or

displaced and inflicting tremendous infrastructural damage to the water and electricity infrastructure, roads and ports systems in the capital, Port-au-Prince, and its surrounding areas. What is more, although the hurricane season was not particularly destructive in 2010, Haiti was struck by a cholera epidemic in October. Until now, about 230,000 cases were reported, resulting in about 4,500 deaths. As of February 2011, about 3,000 patients per week were admitted for hospitalisation, as opposed to 10,000 at the November peak. USAID/OFDA believe that the disease will most likely be present in the country for the next years.

Figure 1: Displaced people in camps



Source: CCCM, IOM, January 2011.

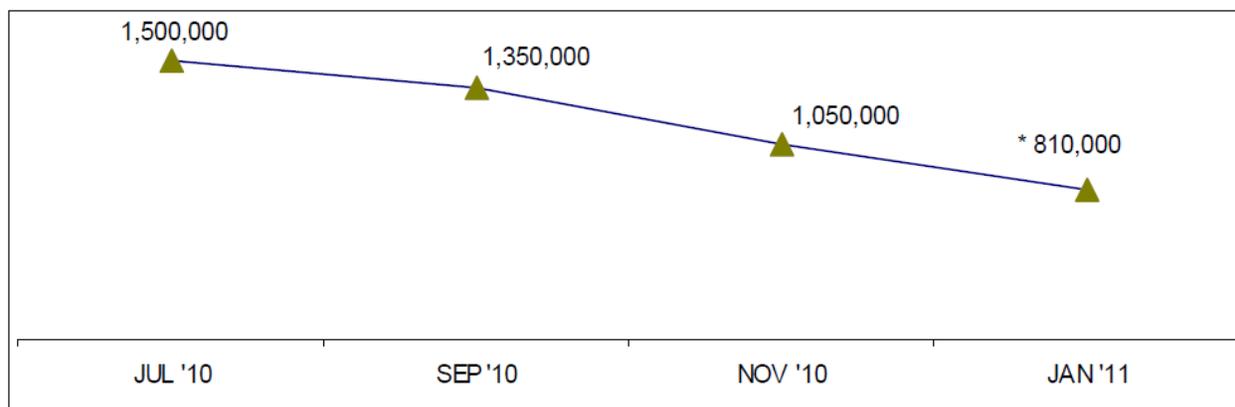
Few months after the disaster, the human toll was extremely severe: 2.8 million people were affected by the earthquake, causing between 150,000 and 220,000 deaths depending on the estimate, and even more injuries.^{11,12} Over 97,000 houses were destroyed and over 188,000 were damaged. 661,000 people moved to non-affected regions. In the early weeks after the earthquake, a large number of camps were set up in order to accommodate the homeless population in the disaster-stricken areas (see Figure 1).

¹¹ Source: United Nation Office for the Coordination of Humanitarian Affairs (OCHA).

¹² Kolbe et al. (2010) estimated that 158,679 people in Port-au-Prince died during the quake or in the six-week period afterwards owing to injuries or illness.

From a high 1.5 million people living in 1,555 makeshift camps and settlements in July 2010, 810,000 were still staying in 1,150 of these sites in January 2011 (see Figure 2), these numbers still decreasing over the last months. These people continue to live under extremely precarious sanitary conditions, and, although those camps were the priority targets of emergency assistance efforts, it took time for that assistance to reach them in many cases. Indeed, while considerable quantities of assistance items started reaching Haiti by air, road and sea, bottlenecks as well as limited logistics capacity in the supply chain proved to be major challenges in the early weeks after the quake.

Figure 2: Number of people displaced between July 2010 and January 2011



Source: CCCM, IOM, January 2011.

Emergency assistance programs have rapidly been set up. In addition to food assistance programs, Cash/Food-for-Work (C/FfW) programs have provided immediate cash or food support to the unemployed after the disaster. Until November 2010, about 240,000 people were employed through C/FfW schemes, through 231 projects (OCHA, 2011). The work consists in removing and disposing of debris and rubble,¹³ and cleaning drainage to avoid floods. The United Nation World Food Program (WFP) reached about 400,000 direct or indirect beneficiaries through C/FfW programs. 68% of the destroyed or damaged schools were cleared of debris.

While fully-functioning cluster structures are in place to coordinate the organizations involved in the assistance response, uncoordinated donations of all types continue to flood to the Dominican Republic and to Haiti (OCHA, 2010), as is often the case in such large-scale disaster situations. In order for humanitarian aid to benefit affected populations in an optimized way, donations have to be well planned with national authorities and the humanitarian community

¹³ Note that, of the 10 to 11 million cubic meters of rubble, about 10 to 15% only were managed.

coordinating the assistance effort. In particular, it is to be noted that, although aid coverage has reached many targets, it is still necessary to reach the poorest and most vulnerable people.

Moreover, Haitians have been showing quite remarkable levels of resilience so far, which leads us to think that they will devise unforeseen coping strategies to address the challenges that lay ahead. Aid efforts should definitely take this factor into consideration, tap into and build on these capacities, in order to deliver more targeted, effective and sustainable humanitarian and recovery forms of aid.

3. Methodological Framework

Addressing the political economy of aid allocation often proves to be a major issue. Indeed, in the post-disaster context in Haiti—as in other countries—, it appears crucial to know whether assistance benefited more influential households. For instance, Francken et al. (2009) study the allocation of emergency assistance after cyclone Gafilo hit Madagascar in 2004, based on the USAID-funded survey conducted after the disaster. They find that, while assistance efforts also reached some untouched towns and villages, directly affected areas were more likely to receive aid. Also, they showed how donors' assistance efforts were greater in richer areas and how mass media coverage made it more likely to receive assistance. Finally, areas which had been supporting the current government in previous elections received more assistance, and this assistance was often allocated to easily accessible communities, even when they had not been hit by the cyclone.

In the case of Haiti, CNSA (2010a) reports that food aid might not have been allocated in an equal and unbiased way, particularly when local boards had been entrusted with it or had simply taken it over by themselves.

Indeed, strict rules such as those described by Morris and Wodon (2003) are not necessarily implemented or applied when allocating assistance. In their model, assistance is used by the policymaker (be it a government or an agency) to equalize the level of post-disaster assets (including emergency assistance) of the poorest households with the assets level of the second poorest household, and so on... The policymaker may, however, choose to operate along different allocation patterns. One option is to give more weight to the losses incurred due to the disaster than to the level of pre-disaster assets, in connection with the idea that each household's welfare situation is not only determined by its post-disaster assets level (satisfaction motive), but also by its post-disaster assets level as compared with its pre-disaster level (deprivation motive).

These allocation principles are, however, purely theoretical and it is difficult to know what prevails in actuality. For example, should groups get organized to capture and retain control of part of the assistance, then those principles can hardly be operational. However, if policymakers are able to identify the people's needs, keeping anonymity functional, then they will be better equipped to devise and then implement and operate pre-established aid-allocating rules and principles and thus target those who need it the most.

In order to assess the impact of aid upon food security and to determine aid allocation conditions after the disaster in Haiti, we present a simple empirical model.

$$(1) \quad EA_{it}^* = \alpha + \beta A_{it-1} + \gamma L_{it} + \delta H_{it} + \rho X_{it} + \varepsilon_{it}$$

$$(2) \quad EA_{it} = 1 \quad \text{if} \quad EA_{it}^* > 0$$

$$EA_{it} = 0 \quad \text{if} \quad EA_{it}^* \leq 0$$

$$(3) \quad FCS_{it} = \alpha' + \beta' A_{it-1} + \gamma' L_{it} + \lambda EA_{it} + \rho' X_{it} + \varepsilon'_{it}$$

with

$$(4) \quad A_{it} = A_{it-1} - L_{it}$$

where FCS_{it} is the food consumption score of household i at time t , EA_{it} is the emergency assistance variable which values 1 if the household gets assistance and 0 otherwise, A_{it-1} is a pre-earthquake assets index, whereas A_{it} is a post-earthquake assets index, L_{it} is a measure of assets losses, H_{it} is a variable of housing damage and X_{it} is a vector of household characteristics.

In this paper, the pre-/post- earthquake analysis of food security and emergency assistance allocation makes it possible to test different hypotheses concerning issues of assistance targeting efforts.

First, we consider the possibility that the targeting of assistance programs is based on the pre-disaster level of assets and asset losses, that is $\beta < 0$ and $\gamma > 0$. Second, we can suppose and test whether, in absolute value, the weight placed on pre-disaster assets is greater than the weight placed on asset losses, that is $|\beta| < \gamma$. Indeed, while satisfaction depends on what a household possesses, deprivation depends on what a household does not have yet believes they could or should have, that is on the extent of their losses (Morris and Wodon, 2003). Finally, we also want to test whether housing damage has an impact on assistance allocation, that is $\delta > 0$.

We then turn to the impact of the earthquake on the food consumption score. First, we want to test whether this score depends on the pre-disaster level of assets as well as on asset losses, that is $\beta' > 0$ and $\gamma' < 0$. Second, we consider the possibility that in absolute value, asset losses have a lower impact on food consumption score than the pre-disaster level of assets $\beta' > |\gamma'|$. Indeed, in connection with the earthquake, households should have enforced coping strategies that enable them to buffer the impact of that shock. Finally, we also want to test whether assistance (in particular food assistance) has an impact on the food consumption score that is $\lambda > 0$.

For identification purposes, the post-earthquake asset index is measured in February. This will avoid endogeneity bias in equation (1) due to the fact that assets losses might be lower for households who benefited from assistance programs. Furthermore, the housing damage due to the earthquake (variable H) might be a valid instrument for EA in equation (3). Indeed, this variable should not be related to FCS otherwise than through EA. In the sequel, we will thus test this assumption and further discuss the impact of EA on FCS.

4. Data and Empirical Findings

(a) Data sources and methodology

A post-earthquake food security-oriented survey was conducted in June 2010 by the CNSA in collaboration with its main partners (ACF, FEWS-Net, Oxfam GB, FAO, UNICEF and WFP). The sampling used for the household survey is a probabilistic cluster method, using two stages: (i) enumeration sections (geographical areas) and camps and (ii) households. 2003 census data is used to select the enumeration sections, with a probability proportional to population size. Eight households are then selected randomly in each section. Camps are selected using the International Organization for Migration (IOM) data; the number of camps selected was proportional to the size of the communes. The sampling method yielded 1901 interviewed households, located in the disaster areas (camp and non-camp sites) as well as in some non-directly affected areas. Geographic strata covered by the EFSA II survey are presented in Figure 3 (in Appendix).

To randomly select households, different methods were used for the urban households, the rural households and the camps. For urban households, survey investigators observe and mark the location of households on a street map that does not contain socio-economic infrastructure, and the households are randomly selected. For rural households, previously

mapped buildings are randomly selected using enumeration section maps, and households living in those buildings are interviewed; if there are no households inside, then the closest household is selected. For camps, survey investigators start from the centre of the camp and walk towards the outside in a different randomly selected paths. They number each household encountered in the way, and randomly select two households to interview. For all three types of sampling, when multiple households are found living in the same building or tent, a single household is randomly selected.

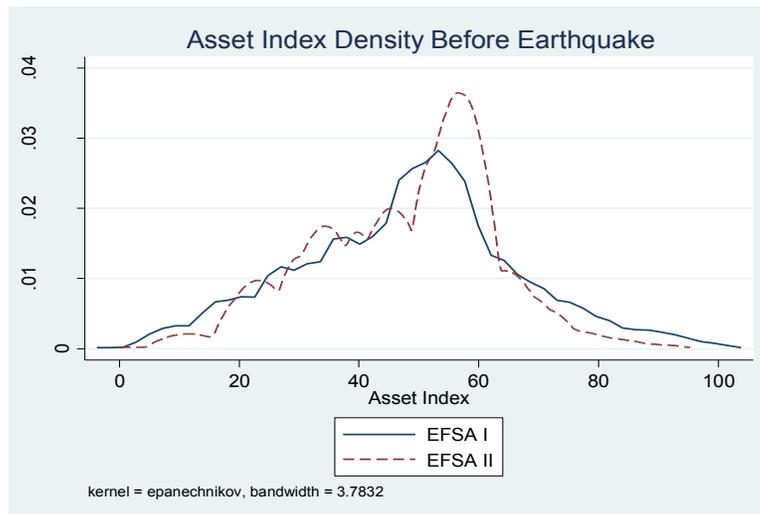
In connection with these data, it is necessary to bear in mind that the results of the survey remain relatively imprecise (CNSA, 2010a). Indeed, the sampling was operated according to a census that was de facto made obsolete in the wake of the earthquake, given the population displacements entailed by the disaster. Moreover, some camps had at that point been set up but had not yet been registered by the IOM, especially in rural areas (Jacmel, Léogâne). On several sites, there were no lists available, so that local authorities were called upon to identify camps and then determine the number of households there. Finally, there was no gaining access to few areas which were out of bounds (remoteness or landslips caused by the earthquake) that may induce a small bias in the analysis.

The questionnaire examined food insecurity and the dynamics of poverty as well as the impact of displacements in non-directly affected areas. Food and non food emergency assistance allocation efficiency is also assessed in the wake of the earthquake.

(b) Recall bias

Data analysis does not incorporate sampling weights nor adjusts for clustering within households. Indeed, as the situation evolves rapidly, our analysis focuses on targeting and behaviors and, although households had been chosen randomly, does not present results fully representative of the population. One important issue is, however, to assess the recall bias due to distant answers from the earthquake. In the June (EFSA II) survey, households were interviewed on their situation in June and, retrospectively, on their situation in February and before the earthquake. In the February (EFSA I) survey, households were also interviewed retrospectively on their situation before the earthquake.

Figure 4. Distribution of pre-earthquake asset index



Source: Own computations using February 2010 (EFSA I) and June 2010 (EFSA II) surveys. Notes: The sample is restricted to the households residing in the six strata that cover areas directly affected by the earthquake. Asset index weights are calculated using EFSA I pre-earthquake assets.

To compare the retrospective answers in both surveys, we have built an asset index, obtained from a multiple component analysis using pre-earthquake housing characteristics and household durable goods. This asset index is thus a proxy for household wealth. Weights are estimated with the February survey and are used to build asset index in both surveys. Figure 4 shows that pre-earthquake asset index distributions are very similar. So, recall bias might be small in the June survey.

(c) Assets

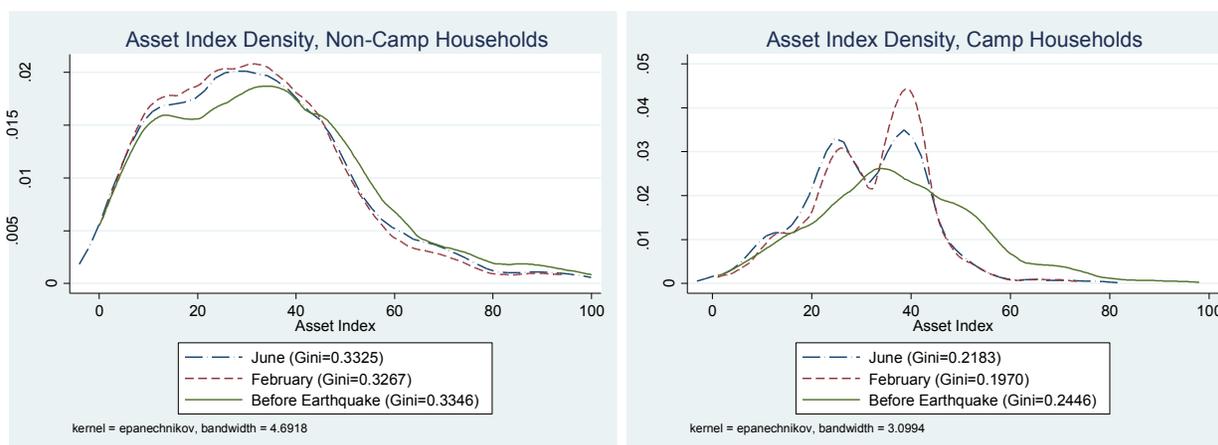
Based on the June survey, an asset index is calculated using a wider set of pre-earthquake dichotomous variables, namely some durable goods not declared in the February survey and access to basic utilities.¹⁴ Table 2 (in Appendix) reports both weights and contributions to inertia. Weights have signs consistent with interpretation of the first component as an asset-poverty index. In directly affected areas, contribution to inertia of lighting appears to be particularly high (26.7%). Water source also contributes in a large extent to inertia (18.9%).

¹⁴ Note that all our results have been replicated using a more restrictive definition of the asset index for which water source, water filtration, lighting, type of toilet and tools/material were not included in the multiple correspondence analysis. Regression results (presented later) in particular were not very different when using this alternative asset index. What is more, results do not vary very much when using factor analysis instead of multiple correspondence analysis to build the index.

Having tools or material for fishery, agricultural production and handicraft contributes to 12.2% of the inertia explained by the first component of the analysis.¹⁵ Other items contribute to less than 10% of inertia each.

Using retrospective data on assets from the June survey, Figure 5 presents the asset index distributions before the earthquake, in February and in June. Using this index, we can notice that the inequality of household wealth (as measured by the Gini coefficient) has decreased after the earthquake due to higher losses among the wealthiest. This is particularly true among households living in camps (Gini is 0.2446 before the earthquake and 0.1970 in February). Then, between February and June, inequality of household wealth has increased—from 0.3267 to 0.3325 among non-camp households and from 0.1970 to 0.2183 among camp households.

Figure 5. Distribution of wealth (directly affected areas)



Source: Own computations using June 2010 (EFSA II) survey. Notes: The sample is restricted to the households residing in the six strata that cover areas directly affected by the earthquake. Weights are calculated using pre-earthquake assets.

Figure 6 presents the distribution of wealth losses in percentage of pre-earthquake wealth. The percentage of asset loss among households who lost assets is around 25%. This percentage does not seem to vary a lot according to pre-earthquake wealth quintile.

¹⁵ Note that households with tools/material (for fishery, agricultural production and handicraft) will be classified as poorer households (asset index weight equals -0.951). This is due to the fact that such asset variable is not well correlated with other asset indicators (e.g., private water, electricity for lighting, WC, oven, television, fan and so forth) that would classify them as richer. In this sense, the asset index can be described as the best regressed latent variable on the assets variables (or primary indicators) since no other explained variable is more informative (Asselin, 2009).

Figure 6. Wealth losses distribution



Source: Own computations using June 2010 (EFSA II) surveys. Notes: The sample is restricted to the households residing in the six strata that cover areas directly affected by the earthquake. Asset index weights are calculated using pre-earthquake assets.

To go further in the evaluation of assets, we follow Moser and Felton (2007) and construct five categories of assets. The categories considered are: physical capital (divided into two categories: housing quality and household durables), financial / productive capital (income sources and productive durables), human capital (education), social capital (association participation) and agricultural capital. Using these categories, it is possible to evaluate physical capital, productive capital and agricultural capital before and after the earthquake.¹⁶ Social and human capital can only be evaluated in June, but they can be considered as invariant over the period.

¹⁶ The agricultural index is estimated using agricultural production related good and facilities such as irrigation. The weights given to each variable are obtained from a multiple component analysis and are presented in Table 3 (in Appendix).

Figure 7. Star graphs of household asset portfolios
(Pre-earthquake and June conditions)



Source: Own computations using June 2010 (EFSA II) surveys. Note: The sample is restricted to the households residing in the six strata that cover areas directly affected by the earthquake.

Figure 7 first shows that physical capital, productive capital and agricultural capital have decreased after the quake in the directly affected areas. Indeed, physical capital has decreased after the earthquake in February, and increased slightly between February and June, though not yet to the pre-earthquake level. Productive capital has decreased during both time intervals, while agricultural capital has also decreased after the earthquake and between February and June. Second, Figure 7 shows that the correlation between the asset index and other indexes is generally positive, except with the social capital index (no correlation appears). The correlation is negative with the agricultural asset index. Finally, we note that the correlation between the asset index and the durable goods index has decreased after the earthquake: the between quintiles gaps are lower in June than they were before the earthquake.

(d) Directly affected areas

Table 4 presents descriptive statistics for households living in directly affected areas. The food consumption score is calculated based on the number of different food groups consumed by the household, to represent diversity, and the number of times a week they are consumed. Notably, we observe that the average food consumption score is 55.79, with a standard deviation of 19.75. A majority of households is above the limit food consumption thresholds (the limit consumption threshold being 42 and the critical threshold being 26).

Table 4 also shows that, in June, 44% of the households in directly affected areas had received assistance and that 32% had received food assistance. 37% of the respondents' houses

were partially or totally destroyed, making it impossible to live in them. 44% of the households slept in their homes, while 44% slept in a camp. 12% of the households had agricultural production as their main source of income, 37% had trade, 26% unqualified work, 17% professional work and 3% lived mostly out of transfers. Aid was received from both abroad (12%) and from within Haiti (18%).

Table 4. Descriptive statistics

	Mean	Std
Food consumption score	55.79	19.75
Assistance	0.44	0.50
Food assistance	0.32	0.47
Housing not damaged	0.17	0.37
Housing damaged but still usable	0.46	0.50
Housing partially destroyed	0.11	0.32
Housing totally destroyed	0.26	0.44
Sleeping in the house	0.44	0.50
Sleeping beside the house	0.09	0.29
Sleeping in the neighborhood	0.27	0.44
Sleeping in the commune	0.18	0.38
Sleeping outside the commune	0.02	0.14
Sleeping in a camp	0.44	0.50
Main income source before the earthquake		
Agricultural production	0.12	0.32
Trade	0.37	0.48
Unskilled work	0.26	0.44
Skilled work	0.17	0.38
Transfer	0.03	0.18
Other income source	0.04	0.19
Aid/transfers from abroad	0.12	0.32
Aid/transfers from Haiti	0.18	0.38

Source: Own computations using June 2010 (EFSA II) surveys. Note: The sample is restricted to the households residing in the six strata that cover areas directly affected by the earthquake. See Table 16 for a complete description of variables in directly affected and non directly affected areas.

(e) Pre-earthquake conditions

Table 5 presents summary statistics by quintile of pre-earthquake wealth. The poorest households lived mostly in the East of the directly affected area (Léogane, Gressier, Jacmel, Petit Goâve, Grand Goâve and Croix-des-Bouquets). They were mostly agricultural households: 66% of them were practicing agriculture, compared to only 5% among the wealthiest, who were mostly concentrated in Port-au-Prince or Pétionville. The poorest households lived in houses with no electricity and no toilets, and do not have access privately to water. They had no car and

no oven for cooking. Only few of them had a TV or a fan. Most (66%) had tools or materials for production. Compared to other groups, they took more part in associations be they religious ones (28%) or not (19%). In the population, very few people (around 1% to 2%) were part of cash and food for work programs. Participants represented only 0.8% among the poorest households. The poorest households derived their main source of income from agriculture production (38%), trade (30%) and unskilled work (20%). They received comparatively less aid from relatives or friends from Haiti (11%) or from abroad (14%) than the richest (resp. 29% and 23%).

Table 5. Households characteristics before the earthquake, by pre-earthquake quintile of wealth

Pre-earthquake quintile of wealth	Poorest	2	3	4	Richest
Number of households	250	259	239	254	244
Location (commune)					
Carrefour, Port-au-Prince and Delmas	0.04	0.10	0.21	0.24	0.30
Léogane, Gressier	0.28	0.24	0.16	0.11	0.07
Jacmel, Petit Goâve	0.31	0.16	0.13	0.06	0.08
Pétionville, Tabarre	0.03	0.12	0.15	0.23	0.32
Cité Soleil	0.03	0.15	0.21	0.31	0.18
Grand Goâve, Croix-des-Bouquets	0.32	0.22	0.14	0.06	0.05
Household size (median)	6	5	6	5	5
Housing characteristics					
Electricity (lighting)	0.03	0.48	0.70	0.82	0.90
Toilet (WC)	0.00	0.00	0.01	0.06	0.37
Private water	0.00	0.06	0.13	0.63	0.86
Oven ownership	0.00	0.01	0.01	0.05	0.38
Television ownership	0.09	0.41	0.74	0.82	0.96
Fan ownership	0.04	0.14	0.41	0.47	0.85
Car ownership	0.00	0.03	0.01	0.02	0.17
Tools/Materials for production	0.66	0.34	0.09	0.14	0.08
Number of poultry owned (median)	7	9	6	5	8
Number of goats owned (median)	3	3	4	2	3
Number of swines owned (median)	2	3	3	3	4
Number of cattle owned (median)	1	2	2	1	2
Number of sheep owned (median)	2	8	2	2	-
Number of horses/donkeys owned (median)	1	1	1	2	1
Take part in cash-for-work program	0.008	0.015	0.017	0.016	0.00
Take part in food-for-work program	0.008	0.008	0.008	0.008	0.00
Take part in religious association (June)	0.28	0.32	0.24	0.22	0.24
Take part in non religious association (June)	0.19	0.08	0.10	0.08	0.10
Agricultural practice	0.66	0.32	0.13	0.06	0.05
Income sources					
Agricultural production	0.38	0.15	0.04	0.02	0.00
Trade	0.30	0.32	0.40	0.43	0.42
Unskilled work	0.20	0.33	0.30	0.28	0.17
Skilled work	0.08	0.16	0.17	0.17	0.30
Transfer	0.02	0.01	0.04	0.04	0.05

Other income source	0.02	0.02	0.05	0.06	0.05
Aid/transfer sent to relatives/friends in Haiti	0.14	0.17	0.25	0.26	0.29
Aid/transfer received from relatives/friends in Haiti	0.11	0.11	0.20	0.22	0.23
Aid/transfer received from relatives/friends abroad	0.14	0.12	0.15	0.21	0.34

Source: Own computations using June 2010 (EFSA II) surveys. Notes: The sample is restricted to the households residing in the six strata that cover areas directly affected by the earthquake.

(f) *Damages and losses due to the earthquake*

Table 6 presents households damages and losses by pre-earthquake wealth quintile. Many households in the directly affected areas appear to have had their house damaged or destroyed (82.6% of all households). Concerning income sources, the richest households appear to have more experienced the death of one or more income earners (11.5%) compared to other groups (8.7% on average for all households). They have also experienced loss of savings more often. Compared to other households, the richest ones were more to lose: in February 2010, 86.5% experienced assets losses, compared to only 17.6% among the poorest. The main assets lost were a television, radio or fan among the richest; they consisted of a radio, cell phone and iron among the poorest. In June 2010, many of the richest households had recovered back to their pre-earthquake situation (16.0%), whereas the poorest households were more to lose. This feature of the dynamics of poverty may indicate the existence of a *poverty trap*: the poorest households continue losing assets even after the disaster, whereas the richest households manage to recover their assets. From these figures, what is important to know yet is how the richest households have recovered, whereas the poorest have not. Is it actually the case that assistance might not have been allocated in an equal and unbiased way? Or, were the richest households more able to cope with the disaster?

Table 6. Damages and losses due to the earthquake, by pre-earthquake quintile of wealth

Pre-earthquake wealth quintile	Number of households	Housing			Income		
		% Not damaged	% Damaged, but still usable	% Partially or totally destroyed and not usable	% Death of income earner	% Loss of income earner	% Lost their savings
Poorest	250	24.4	42.4	32.4	5.6	11.2	14.0
2	259	10.8	43.2	45.9	8.1	26.6	20.1
3	239	14.2	43.5	38.9	9.6	27.6	21.8
4	254	15.7	49.2	35.0	8.7	19.3	27.6
Richest	244	17.6	49.6	32.4	11.5	25.8	30.7
Total	1246	16.5	45.6	37.0	8.7	22.1	22.8

Pre-	Number of	Assets	Agricultural assets*
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earthquake wealth quintile	households	% Assets losses (June) (1)	% Assets losses (February) (2)	Variation (1) – (2)	Main assets lost (February)	% Agric. assets losses (June)	Main agric. assets lost (June)
Poorest	250	19.6	17.6	-2	Radio, cell phone, iron	12.1	Poultry, goats, swine, cattle
2	259	39.0	38.2	-0.8	Television, radio	22.2	Poultry, swine
3	239	57.3	51.9	-5.4	Television, radio	31.8	Poultry, swine
4	254	74.0	79.5	5.5	Television, radio	6.7	Poultry, swine
Richest	244	70.5	86.5	16	Television, radio, fan	0.0	Poultry, goats
Total	1246	51.9	54.6	2.6	Television, radio	15.8	Poultry, goats, Swine

Source: Own computations using June 2010 (EFSA II) surveys. Notes: The sample is restricted to the households residing in the six strata that cover areas directly affected by the earthquake. *Among households practicing agriculture before the earthquake.

(g) Displaced people and host households

Table 7 presents some statistics on mortality and displacements. Overall, 12.4% of households declared having a member dead or missing as a consequence of the earthquake. 12.8% of households declared that at least one member of the household were displaced: this percentage is higher among the richest (14.8%) than among the poorest (8.4%). Among these households reporting at least one displaced member, the mean number is 2.8 people per household, with few variations according to household wealth. In June 2010, the majority of those people were still displaced.

Table 7. Dead/missing and displacements due to the earthquake, by pre-earthquake quintile of wealth

Pre-earthquake wealth quintile	Number of households	% with dead/missing people	% with displaced people*	Number of persons displaced (mean)	Among households with displaced persons				
					Number of children displaced (mean)	Number of adults displaced (mean)	Number of elderly people displaced (mean)	Some people still displaced	All people still displaced
Poorest	250	9.2	8.4	2.8	1.5	1.2	0.1	4.8	81.0
2	259	12.4	10.8	2.9	1.2	1.7	0.0	3.6	85.7
3	239	14.2	12.6	2.5	1.1	1.3	0.0	6.7	83.3
4	254	13.0	17.7	3.0	1.2	1.5	0.4	2.2	75.6
Richest	244	13.5	14.8	2.7	0.9	1.7	0.0	5.6	80.6
Total	1246	12.4	12.8	2.8	1.1	1.5	0.1	4.4	80.6

Source: Own computations using June 2010 (EFSA II) surveys. Notes: The sample is restricted to the households residing in the six strata that cover areas directly affected by the earthquake. *Displaced persons after the earthquake.

Table 8 presents the characteristics of host households in the non-directly affected areas. After the earthquake, the percentage of households who hosted displaced people is 24.5% among the poorer and 63.8% among the richer. The average number of people hosted is 3.2 on average and does not vary much according to household wealth. Most of them are adults (2.3 out of 3.2). In June, about half of the hosted people were still living in host households.

Table 8. Host households, by pre-earthquake quintile of wealth

Pre-earthquake wealth quintile	Number of households	% Host households	Among host households					
			Number of persons hosted* (mean)	Number of children hosted (mean)	Number of adults hosted (mean)	Number of elderly people hosted (mean)	Some hosted people still remain	All hosted people still remain
Poorest	151	24.5	3.3	1.3	2.0	0.0	8.1	27.0
2	109	26.6	3.1	1.1	2.1	0.0	3.4	27.6
3	130	36.2	3.6	0.7	2.7	0.1	23.4	19.1
4	130	60.8	3.2	0.9	2.2	0.0	20.3	44.3
Richest	130	63.8	3.2	0.7	2.4	0.0	19.3	43.4
Total	650	42.3	3.2	0.9	2.3	0.0	17.1	35.6

Source: Own computations using June 2010 (EFSA II) surveys. Notes: The sample is restricted to the households residing in the three strata that cover non-directly affected areas. *Hosted persons after the earthquake.

(h) Emergency assistance allocation

Table 9 (in Appendix) shows the percentage of households receiving assistance. In directly affected areas, 43.9% of households benefited from assistance, with little variation according to wealth quintile, except for the poorest: only 38.2% of them received assistance. On the contrary, in non-directly affected areas, the percentage of households benefiting from assistance is higher among the poorest households (12.0%) than among the richest ones (3.1%). One factor that may explain the difference in assistance allocation between the richest and the poorest is the probability of experiencing an asset loss, which was higher for the richest than for the poorest households. However, although government and agencies may have compensated households according to their losses, they should have also targeted with priority the less wealthy households. Also, in the early weeks after the earthquake, assistance programs may have faced difficulties when it came to efficiently targeting households, or they may simply have chosen not to do so.

5. Regressions Results

In this section, we give the estimation results of the equations presented in section 3. Table 10 (in Appendix) first provides estimates for the emergency assistance and food consumption score equations without other covariates than pre-earthquake asset index, asset-losses, post-disaster housing damage, location and participation in associations. Second, Table 11 (in Appendix) presents estimates when adding other covariates such as gender, age and education of the head of the household, the number of infants, children, youths, adults and elderly people in the household, the fact of living in a private housing or not, the fact of having agricultural practice or not, the main income source, and other covariates which correspond to typical household coping strategies: aids and transfers from other Haitians in Haiti or abroad, type of transfers, debts, savings and banking accounts. We also add among the covariates a *reduced coping strategy score* computed according to how frequently household members had to resort to survival strategies related to food consumption during the week before the survey.

(a) Emergency assistance equation

It is shown in Tables 10 and 11 that asset losses have no significant effects on receiving either general or food assistance. However, adding more covariates in Table 11, the pre-earthquake assets index appears to have a statistically significant effect on food assistance and less so on general assistance. Destroyed housing has a significant and positive impact on getting general assistance, while it does not on getting food assistance. The place where households sleep appears to have a significant effect on assistance allocation. Sleeping in a camp does not appear to have a significant effect on getting food assistance (as it was the case according to the February survey). Furthermore, of the various association memberships, participation in agricultural organizations and participation in school committees have significant positive effects on receiving assistance, whereas participation in religious organizations has a small but significant negative effect. Only agricultural organization membership has a large and significant positive effect on food assistance.

Interestingly enough, assistance seemed not to be better targeted in June than it was in February: indeed, although households headed by higher educated people had lower access to post-earthquake assistance in June, female headed households had less access to general assistance and families with disabled people had less access to food assistance. Finally, the fact that associations may favour assistance allocation is an interesting result that should be considered further.

(b) Food consumption score equation

Tables 10 and 11 also show regression estimates for the impact of households' characteristics on food consumption score. Both types of assets appear to be positively correlated with food consumption score, whereas agricultural assets losses have a negative effect, adding or not other controls. Interestingly enough, asset losses no longer have a significant effect on food consumption score in the June survey, while it was significantly negative in the February survey. Households thus seem to have been able to cope with the shock, some with their own means and others with the help of assistance programs.

Indeed, it is interesting to note that food assistance appears to have a positive effect on food consumption score in June, whereas it wasn't significant in February. So it appears that five months after the disaster, assistance programs may have partially succeeded in responding to the shock, whereas the effects of food assistance on food security was not perceptible a few weeks after the seism.

Beside this, aid from abroad, savings and bank accounts all have a strong positive effect on food consumption score, although they are likely capturing the effect of other unobserved variables.

(c) Joint estimates of both equations

There is a strong possibility that emergency assistance is actually endogeneous to food consumption score. Therefore, we try to use instrumental variables to estimate the probability of receiving assistance. Housing damage, location variables (i.e., where people sleep) and associations membership are potential instruments. However, when using multiple instruments in a single equation, it is not possible to reject the over-identification assumption with a standard Sargan test. Indeed, the instruments might be correlated with the error term in the food consumption score equation. Furthermore, it is not possible to reject the endogeneity of the assistance variable with a Hausman test when using any combination of instruments. So, this could also be an indication of the instrumental variables not being completely valid.

(d) Impact of displacements

Focusing on households in non-directly affected areas, Tables 12 and 13 (in Appendix) show the estimates of the impact of the presence of hosted/displaced people in the household on

both emergency assistance and food consumption scores. We find no significant impact of this variable, neither on assistance nor on food consumption score. This is an important result since it proves that households seem to succeed in coping with this shock. Besides, food assistance appears to have no effect on household food consumption score in non-directly affected areas. Female headed families have lower food consumption score, while agricultural producers are less food insecure.

6. Cash and Food-for-Work Programs

Before the earthquake, the labor market in Haiti was already a major issue. According to CNSA (2008), in rural Haiti, half of the population was inactive (with a higher concentration in the North) and the dependency rate (i.e. the number of inactive persons over active ones) appears to be particularly high with about 103 inactive persons for 100 employed persons.

In response to these very restrictive conditions on the labor market, and in addition to food assistance programs, cash-for-work (CfW) programs provide immediate cash support to the unemployed. In general, CfW are short-term interventions (normally 2-3 months) which provide temporary employment in public projects (such as repairing roads, cleansing irrigation channels or re-building infrastructure) to the most vulnerable segments of the population or in areas directly affected by natural disasters. After the earthquake, CNSA (2010a) reported that many people interviewed in focus groups expressed a preference for activities where their skills and capabilities could be used, such as the cash and food-for-work (C/FfW) programs which allow people living in directly affected areas to keep their dignity and self-esteem.

(a) Main results

Tables 14a and 14b present descriptive statistics by pre-earthquake wealth. First, Tables present variables describing household vulnerability such as employment status, death of workers, housing damage and asset losses after the earthquake. Second, variables such as the household's main income source, participation in cash and food-for-work programs as well as the benefice derived from other transfers from relatives or friends are presented before and after the earthquake. Benefits from various assistance programs are presented in June.

Main income sources have been hit by the disaster: although the percentage of households for whom agriculture production is the main source of income has remained stable over the period, incomes from trade, unskilled and skilled works have dropped. Conversely,

primary income from remittances and other income sources have logically become more prominent: in February, 22.8% of households declared these sources of income as their main one, whereas they were only 6.9% to do so before the earthquake. This percentage fell to 13.8% in June.

Furthermore, clear differences appear between the richest and the poorest: the structure of income sources has remained relatively stable among the poorest before and after the earthquake, whereas it was sharply modified among the richest due to the earthquake. This can be explained by the fact that income sources are less diversified among the poorest and only few of them benefit from money remittances.

When considering remittances received from relatives or friends, it is observed that, in June, 9.2% of the poorest households received remittances from Haiti, while they were 22.1% among the richest. Remittances from Haiti decreased over the period: from 14.1% before the quake among the poorest (resp. 14.5% received remittances from abroad) to 10.4% in February (resp. 10.4%) and 9.2% in June (resp. 8.4%). Among the richest, remittances from Haiti decreased from 29.1% to 23.4% in February and 22.1% in June, and remittances from abroad decreased from 34.4% before the quake, to 28.7% in February and 21.7% in June.

Participation in cash-for-work (CfW) programmes was reported by 1.2% of households before the earthquake (0.8% among the poorest and 0.4% among the richest), 4.3% in February (4.4% among the poorest and 4.1% among the richest) and 6.0% in June (5.6% among the poorest and 5.3% among the richest). Interestingly, CfW does not represent a primary source of income for households: only 0.9% of households declare it as their main source of income in June (0.4% among the poorest and 0.8% among the richest).

Unlike what was observed for CfW programs, the percentage of households benefiting from food-for-work (FfW) programs did not change drastically over the period (around 1% of the households benefited from FfW programs). Furthermore, in the same way as CfW programs, FfW programs did not appear to be particularly targeted at the poorest.

When comparing participation in programmes in non-directly affected areas, the targeting performance of C/FfW programs appears to be more efficient: indeed, the poorest benefited more from C/FfW programs than did the richest households. Nevertheless, the participation in such programs fell slightly over the period.

Hence, although disaster-related shocks (e.g., death of workers, loss of income sources, loss of remittances, etc.) have affected all quintiles, the poorest households should also be considered as the most vulnerable ones in the face of these changes (because of low diversification of income sources, less workers in the household, more agricultural and fewer skilled jobs, etc.). However, programs did not seem to benefit more the poorest households.

From these facts, it is possible to conclude that C/FfW programs after the earthquake are not well-targeted. These programs do not seem to benefit in priority the poorest households. The efficiency of these programs is, however, difficult to fully assess from these figures. Indeed, on the one hand, losses were often more sizeable among the wealthiest, so assistance programs may have also made up for them. Again, we can notice that non food insecure households are more numerous to have recovered from the pre-earthquake situation (4.8% of them) compared to food insecure households. On the other hand, C/FfW programs should have benefited the most unskilled people in order not to distort the good working order of the labor market. For instance, better paid public jobs may have replaced low paid private jobs in agriculture or elsewhere. Available data, however, do not enable us to assess this possibility.

(b) Regressions results

Table 15a (in Appendix) first provides estimates for CfW and FfW programs participation without other covariates than pre-earthquake assets, asset losses and pre-earthquake participation to programs. Second, Table 15b (in Appendix) presents estimates when adding other covariates such as pre-earthquake agricultural assets, agricultural asset losses, the number of workers dead or missing (in directly affected areas), hosting displaced people (in non-directly affected areas), post-disaster housing damage (in directly affected areas), location and participation in associations. Third, Table 15c (in Appendix) provides estimates of the effects of other household characteristics such as marital status, gender, age and education of the head of the household, the fact of living in a private housing or not, the number of infants, children, youths, adults and elderly people in the household, the number of workers, the fact of having agricultural practice or not, and post-earthquake variables such as the main source of income and the fact of having savings or banking accounts.

As a result, estimates appear not to be affected by multicollinearity problems: indeed, estimates of the effects of pre-earthquake assets, asset losses and pre-earthquake participation to programs are not very different when adding or not other covariates in the regressions. What is more, pre-earthquake participation to programmes appears to be an important determinant of

post-earthquake participation. This casts some doubt on the efficiency of targeting of C/FfW programs, particularly in areas where people were severely hit by the earthquake.

In directly affected areas, regressions are estimated separately for cash-for-work, food-for-work and both considered jointly. It is shown in Tables 15a to 15c that both the pre-earthquake asset index and asset losses have no significant effects on participation in either CfW or FfW programs. Agricultural asset losses have a negative and significant impact on CfW participation (but not on FfW participation). This may be an indication that the most agrarian households participated less in CfW programs. Being married and living in a female-headed household have negative and significant impacts on CfW participation. Living in private housing and having savings before the earthquake both have positive and significant effects on CfW participation. In non-directly affected areas, none of these variables are significant. In these areas, participation in Tontine/Sol/Sabotay and the presence of breast-feeding women in the household have positive and significant impacts on CfW participation.

Determinants of FfW are different from CfW ones. In directly affected areas: other social associations, the number of adults between 18-60 and having a bank account have positive and significant effects on FfW participation. The number of workers has a negative and significant effect on FfW participation. In non-directly affected areas: the number of children displaced and hosted in the household, participation in unions or in agricultural associations have positive and significant impacts on FfW program participation.

Finally, even when considering CfW and FfW jointly, there is no significant impact of both the pre-earthquake assets index and assets losses. Therefore, it is clear that these programs are not specifically targeted at people who need it the most, because of their low level of subsistence or losses due to the earthquake.

7. Discussion

The survey used in this paper made an attempt to be representative of the population in the directly affected areas, and of certain non-directly affected areas. The 2003 census was *de facto* made obsolete in the wake of the earthquake. So, the sampling probabilities used to determine enumeration sections which were proportional to population size in the census were relatively imprecise. Moreover, the situation in Haiti evolved rapidly. Some camps had at that point been set up but had not yet been registered by the IOM. After a peak in mid-2010, the population in camps has decreased drastically. Many people have been displaced from one area

to another. In a first time, people moved to escape the disaster area and, in a second time, they came back home.

Despite its lack of representativeness, the survey does, however, provide very useful information on the allocation of assistance programs after the earthquake. In particular, using asset index as a proxy for household wealth, we can firstly specify the dynamics of poverty after the earthquake. Second, it is possible to assess the targeting performance of assistance programs.

Previous results based on a similar survey in February, a few weeks after the earthquake, highlighted the limited ability of assistance programs to target households according to their pre-earthquake household wealth or asset losses after the quake. On the other hand, modelling the impact of various covariates on both assistance allocation and food consumption score, we find that the fact of being in a camp had at that time a sizeable effect on assistance, especially for food assistance. Hence, the emergency assistance principle appears to be connected with self-selection strategies since food-insecure people had little choice but to move to the camps in order to have access to food assistance. We also find that both the pre-earthquake asset index and asset losses have a significant impact on food consumption score, with asset losses making up for about half the effect of the pre-earthquake asset index, which demonstrates that households who enforced coping strategies have been able to buffer the impact of the shock.

So, shortly after the earthquake, assistance programs allocation prove not to have been effective in targeting the most vulnerable people in the directly affected area. Five months after the earthquake, it appears that things had not really changed: although food assistance may have contributed to decrease the prevalence of food insecurity over the period, authorities still seemed unable to provide an efficient allocation of assistance programs. The location of households stands out as the main criterion that emerges from the regression analysis, yet this method of targeting is not sufficient: indeed, assistance also appeared to benefit less to families headed by women and less to households with disabled members, which is contradictory with an "optimal" targeting that would make those most vulnerable eligible for assistance in priority. In addition, participation in an association, such as agricultural organizations and school committees, appeared to favor the allocation of emergency assistance to households.

When focusing of cash and food-for-work programs, we find that these programs are not specifically targeted at people who are most in need, be it because of their low level of subsistence or because of earthquake-related losses. Pre-earthquake participation to programs

appears to be an important determinant of post-earthquake participation. What is more, cash-for-work is very rarely declared as the main source of household income.

We can therefore consider that asset-poverty trends as observed during the five months following the earthquake, has little to do with the allocation of assistance programs. It seems that those households who have lost the most succeeded in recovering more rapidly from the shock, regardless of the effects of assistance, and probably more in line with coping strategies that are specific to households. This might be an expression of the remarkable capacity of resilience of the population in Haiti.¹⁷ Yet, it is not possible to confirm the existence of poverty traps with available data.

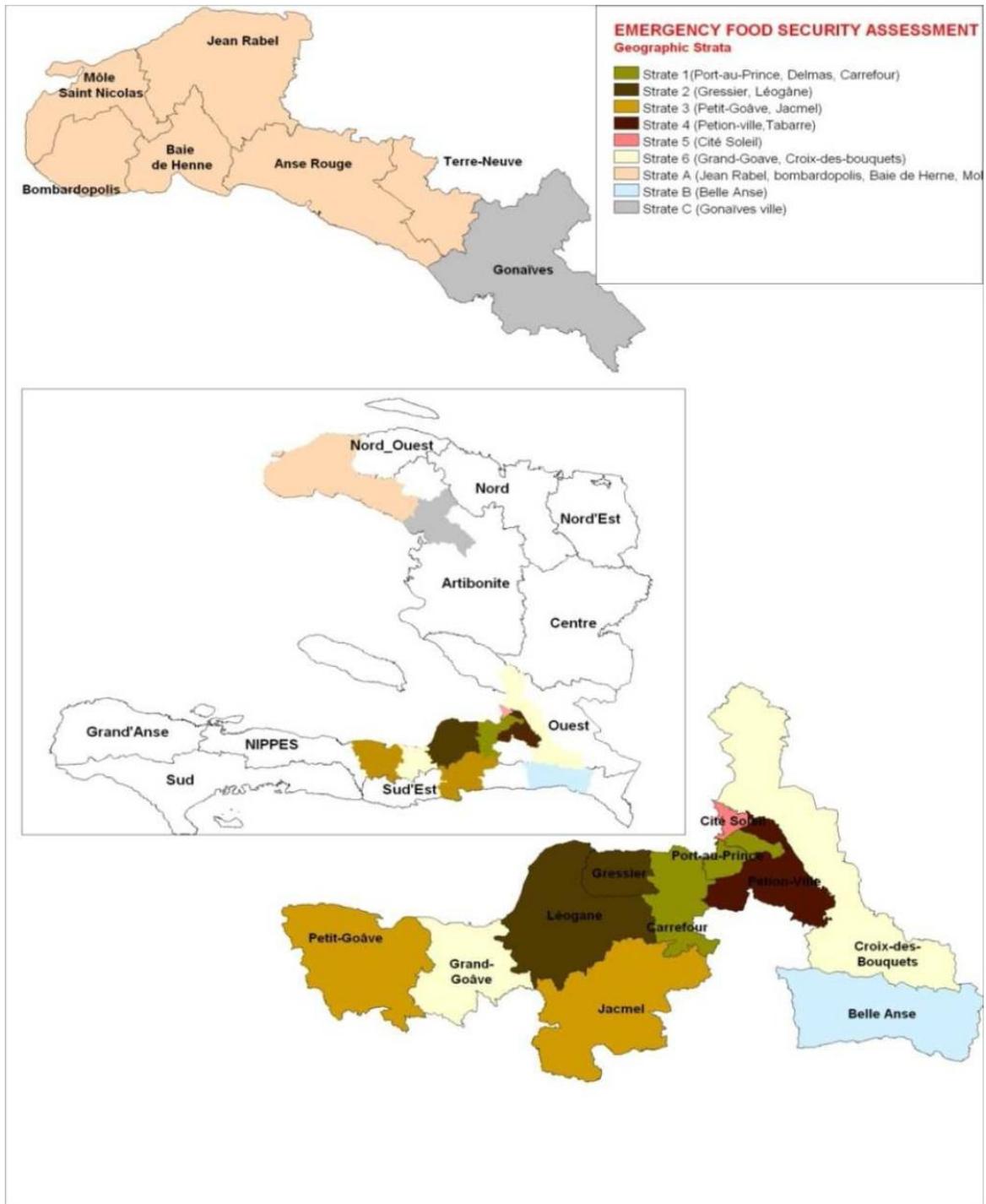
¹⁷ *Cf.* World Bank (2007).

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Appendix

Figure 3: Geographic strata covered by the EFSA II survey



Source: CNSA (2010b).

Table 2: Asset index weights

Variable	Directly affected areas		Non-directly affected areas	
	Weight	Inertia (%)	Weight	Inertia (%)
Water Source				
Tap water	-0.494	0.055	-0.802	0.075
Private water	0.845	0.122	1.093	0.092
Well water	-0.511	0.013	0.615	0.021
Water Filtration				
Filtration product*	-0.354	0.025	-0.294	0.009
Rudimentary method	0.102	0.000	-0.057	0.000
Cooking Fuel	-0.232	0.026	-0.234	0.021
Lighting				
Electricity	0.405	0.049	1.094	0.131
Lamp	-1.273	0.218	-0.803	0.166
Toilet				
Latrine	-0.134	0.007	0.221	0.010
WC	1.467	0.095	1.391	0.017
Oven	1.369	0.086	1.066	0.006
Heater	0.003	0.000	0.196	0.009
Charcoal/wood cooking stove	-0.133	0.009	-0.235	0.020
Television	0.402	0.050	1.112	0.115
Radio	0.102	0.004	0.411	0.029
Cell phone	0.018	0.000	0.113	0.003
Bicycle	0.215	0.003	0.933	0.039
Motorcycle	0.373	0.004	1.040	0.026
Flatiron	0.155	0.008	0.172	0.006
Fan	0.597	0.069	1.359	0.093
Car	1.092	0.029	0.758	0.007
Sewing machine	0.308	0.004	0.555	0.012
Tools/Material	-0.951	0.122	-0.588	0.090
Small business stocks	0.089	0.001	0.068	0.001
Partial inertia contribution (%)	14.78		19.16	

Source: Own computations using June 2010 (EFSA II) surveys. Note: *Filtration products are generally used in relatively poor regions so that it can explain the negative weight.

Table 3: Agricultural assets index weights

Weight	directly affected areas		Non-directly affected areas	
	Assets index	Inertia (%)	Assets index	Inertia (%)
Machete	0.070	0.005	-0.100	0.011
Irrigation system	2.057	0.545	4.632	0.336
Poultry	-0.067	0.003	-0.080	0.006
Goat	-0.199	0.020	-0.127	0.011
Swine	-0.275	0.025	-0.212	0.019
Cattle	-0.419	0.067	-0.016	0.000
Sheep	-1.253	0.025	0.801	0.131
Horse/Donkey	-0.817	0.108	-0.001	0.000
Fertilizers	2.459	0.195	3.076	0.470
Tubercles	0.139	0.007	0.179	0.015
Partial inertia contribution (%)	17.81		18.84	

Source: Own computations using June 2010 (EFSA II) surveys.

Table 9. Emergency aid allocation, food consumption score and other transfers, by pre-earthquake quintile of wealth

Pre-earthquake wealth quintile	Number of households	Mean pre-earthquake assets index	Mean pre-earthquake agricultural assets index	Probability of assets losses (%) (February)	Prob. of assistance (%)	Prob. of food assistance (%)	Food cons. score (mean)	% Food insecure (FCS<42)	% Food insecure (severe) (FCS<26)	% Transfer sent to relatives /friends in Haiti	% Transfer received from Haiti by relatives /friends	% Transfer received from abroad by relatives /friends
Directly affected areas												
Poorest	250	10.7	36.6	17.6	38.2	23.3	51.6	33.6	6.4	5.2	10.4	10.4
2	259	25.0	41.7	38.2	43.2	33.2	51.7	33.6	6.6	6.6	13.9	9.7
3	239	34.4	40.7	51.9	48.1	37.9	55.0	26.8	8.4	11.3	24.7	12.6
4	254	44.0	44.8	79.5	46.5	33.9	55.5	29.1	3.5	11.4	23.6	18.5
Richest	244	62.9	38.2	86.5	43.9	33.6	65.5	15.2	1.6	10.7	23.4	28.7
Overall	1246	35.3	38.8	54.6	43.9	32.3	55.8	27.8	5.3	9.0	19.1	15.9
Non-directly affected areas												
Poorest	151	6.1	6.3	9.3	12.0	12.0	50.4	37.1	3.3	16.6	23.8	0.7
2	109	10.4	6.4	11.9	12.8	12.8	52.3	24.8	2.8	24.8	30.3	3.7
3	130	15.5	7.5	17.7	13.1	13.1	56.8	18.5	1.5	24.6	16.9	6.9
4	130	31.8	9.4	18.5	5.4	5.4	54.1	20.0	4.6	16.9	13.1	7.7
Richest	130	63.0	15.3	35.4	3.1	0.8	65.0	9.2	0.8	15.4	20.8	25.4
Overall	650	25.2	7.3	18.5	9.3	8.8	55.7	22.3	2.6	19.4	20.8	8.8
Host households only												
Poorest	37	5.3	3.2	13.5	13.5	13.5	51.4	35.1	2.7	21.6	29.7	2.7
2	29	10.5	4.3	24.1	10.3	10.3	52.4	17.2	6.9	24.1	34.5	0.0
3	47	15.4	5.7	25.5	10.6	10.6	55.3	14.9	0.0	34.0	10.6	6.4
4	79	32.8	9.9	22.8	3.8	3.8	53.1	19.0	5.1	16.5	11.4	11.4
Richest	83	62.8	18.9	36.1	3.6	1.2	64.2	9.6	1.2	20.5	14.5	28.9
Overall	275	32.8	6.4	26.2	6.9	6.2	56.6	17.5	2.9	22.2	17.1	13.5

Source: Own computations using June 2010 (EFSA II) surveys.

Table 10: Emergency assistance and food consumption score determinants (without covariates)

Variables	Emergency assistance		Food consumption score		Food consumption score, using assistance		Food assistance		Food consumption score, using food assistance	
	Marginal effect	P-Value	Marginal effect	P-Value	Marginal effect	P-Value	Marginal effect	P-Value	Marginal effect	P-Value
Intercept	-	-	41.815	0.000	41.229	0.000	-	-	41.156	0.000
Assistance / Food assistance	-	-	-	-	1.312	0.237	-	-	1.957	0.097
Pre-earthquake assets	0.002	0.172	0.355	0.000	0.355	0.000	0.002	0.122	0.355	0.000
Assets losses	0.000	0.803	-0.043	0.473	-0.045	0.450	0.000	0.936	-0.046	0.434
Pre-earthquake agricultural assets	0.002	0.123	0.286	0.000	0.288	0.000	0.000	0.891	0.292	0.000
Agricultural assets losses	0.000	0.993	-0.384	0.000	-0.388	0.000	0.004	0.093	-0.397	0.000
Housing damaged but still reusable	0.049	0.285	-	-	-	-	-0.017	0.705	-	-
Housing partially or totally destroyed and not reusable	0.157	0.004	-	-	-	-	0.051	0.331	-	-
Sleeping beside the house	-0.058	0.338	-	-	-	-	-0.113	0.037	-	-
Sleeping in the neighborhood	0.191	0.011	-	-	-	-	0.209	0.004	-	-
Sleeping in the commune	0.219	0.005	-	-	-	-	0.287	0.000	-	-
Sleeping outside the commune	0.310	0.003	-	-	-	-	0.376	0.001	-	-
Sleeping in a camp	0.137	0.048	-	-	-	-	0.104	0.099	-	-
Religious association	-0.082	0.020	-	-	-	-	-0.065	0.041	-	-
Sports/ Cultural association	-0.032	0.757	-	-	-	-	-0.005	0.959	-	-
Tontine / Sol / Sabotay	0.146	0.065	-	-	-	-	0.016	0.843	-	-
Womenfolk's association	0.093	0.439	-	-	-	-	0.063	0.614	-	-
Consumer association	-0.035	0.906	-	-	-	-	0.088	0.770	-	-
Konbit, eskwad, other agricultural association	0.398	0.000	-	-	-	-	0.496	0.000	-	-
School committee	0.360	0.014	-	-	-	-	0.087	0.659	-	-
Other social association	0.030	0.842	-	-	-	-	-0.003	0.982	-	-
Nobs	1180		1180		1180		1180		1180	
R2	0.1275		0.0912		0.0923		0.1427		0.0933	

Source: Own computations using June 2010 (EFSA II) surveys.

Table 11: Emergency assistance and food consumption score determinants (with covariates)

Variables	Emergency assistance		Food consumption score		Food consumption score, using assistance		Food assistance		Food consumption score, using food assistance	
	Marginal effect	P-Value	Marginal effect	P-Value	Marginal effect	P-Value	Marginal effect	P-Value	Marginal effect	P-Value
Intercept	-	-	43.025	0.000	42.149	0.000	-	-	41.842	0.000
Assistance / Food assistance	-	-	-	-	1.680	0.139	-	-	2.496	0.039
Pre-earthquake assets	0.002	0.070	0.177	0.000	0.175	0.000	0.003	0.016	0.172	0.000
Assets losses	0.000	0.779	0.036	0.544	0.036	0.537	0.000	0.764	0.036	0.539
Pre-earthquake agricultural assets	0.001	0.484	0.249	0.000	0.249	0.000	-0.002	0.356	0.255	0.000
Agricultural assets losses	0.001	0.639	-0.301	0.002	-0.303	0.002	0.007	0.014	-0.315	0.001
Housing damaged but still reusable	0.043	0.367	-	-	-	-	-0.022	0.632	-	-
Housing partially or totally destroyed and not reusable	0.174	0.002	-	-	-	-	0.062	0.255	-	-
Sleeping beside the house	-0.088	0.179	-	-	-	-	-0.132	0.018	-	-
Sleeping in the neighborhood	0.194	0.017	-	-	-	-	0.220	0.006	-	-
Sleeping in the commune	0.220	0.010	-	-	-	-	0.307	0.000	-	-
Sleeping outside the commune	0.328	0.002	-	-	-	-	0.393	0.001	-	-
Sleeping in a camp	0.100	0.180	-	-	-	-	0.070	0.296	-	-
Religious association	-0.074	0.043	-	-	-	-	-0.052	0.118	-	-
Sports/ Cultural association	-0.067	0.533	-	-	-	-	-0.014	0.893	-	-
Tontine / Sol / Sabotay	0.145	0.070	-	-	-	-	0.024	0.766	-	-
Womenfolk's association	0.072	0.558	-	-	-	-	0.067	0.596	-	-
Consumer association	-0.108	0.695	-	-	-	-	-0.024	0.926	-	-
Konbit, eskwad, other agricultural association	0.427	0.000	-	-	-	-	0.529	0.000	-	-
School committee	0.407	0.002	-	-	-	-	0.150	0.467	-	-
Other social association	0.043	0.780	-	-	-	-	0.039	0.797	-	-
Married	-0.037	0.332	-1.088	0.402	-1.009	0.437	-0.013	0.722	-1.036	0.424
Female head	-0.067	0.042	0.079	0.944	0.160	0.887	-0.040	0.186	0.137	0.903
Age of head	0.000	0.916	-0.037	0.461	-0.036	0.470	0.001	0.461	-0.038	0.447

Primary education	-0.021	0.556	-1.297	0.315	-1.269	0.326	-0.015	0.653	-1.267	0.326
Secondary education	0.026	0.702	0.901	0.703	0.883	0.708	-0.027	0.653	1.010	0.668
Tertiary education	-0.329	0.000	2.899	0.446	3.426	0.369	-0.243	0.000	3.629	0.341
Living in private housing	-0.046	0.385	0.103	0.928	0.579	0.626	-0.023	0.641	0.697	0.554
Number of infants 0-5	-0.007	0.738	0.921	0.202	0.932	0.196	0.012	0.529	0.888	0.217
Number of children 6-11	0.026	0.066	0.515	0.302	0.471	0.345	0.001	0.950	0.496	0.319
Number of youths 12-17	-0.002	0.880	0.537	0.287	0.546	0.279	0.007	0.598	0.531	0.292
Number of adults 18-60	-0.004	0.856	-0.546	0.425	-0.527	0.441	0.013	0.468	-0.556	0.416
Number of elderly over 60	-0.012	0.778	1.587	0.282	1.630	0.269	0.004	0.923	1.622	0.271
Number of sick persons	-0.028	0.352	-2.956	0.004	-2.937	0.004	-0.033	0.234	-2.909	0.005
Number of pregnant women	-0.017	0.749	0.673	0.712	0.659	0.717	-0.028	0.571	0.659	0.717
Number of lactating women	-0.027	0.548	-1.585	0.308	-1.584	0.308	-0.048	0.251	-1.540	0.321
Number of disabled persons	-0.122	0.149	4.039	0.188	4.224	0.168	-0.197	0.000	4.483	0.144
Number of workers	0.023	0.237	0.913	0.163	0.874	0.181	-0.011	0.527	0.925	0.157
Agricultural practice	0.103	0.124	-1.017	0.649	-1.144	0.608	0.215	0.002	-1.377	0.538
Agricultural production	-0.133	0.518	3.914	0.619	3.997	0.611	-0.248	0.015	4.457	0.570
Trade	-0.020	0.926	8.124	0.285	8.102	0.286	-0.147	0.395	8.448	0.265
Unskilled work	0.055	0.801	7.376	0.332	7.241	0.341	-0.054	0.762	7.451	0.327
Skilled work	0.011	0.958	11.288	0.141	11.237	0.142	-0.095	0.572	11.515	0.132
Transfer	-0.027	0.906	0.793	0.923	0.940	0.908	-0.190	0.098	1.517	0.852
Other income source	0.022	0.925	6.714	0.403	6.708	0.403	-0.160	0.228	7.228	0.367
Aid/transfers from abroad	-	-	9.340	0.000	9.332	0.000	-	-	9.191	0.000
Aid/transfers from Haiti	-	-	0.068	0.977	0.146	0.952	-	-	0.196	0.935
Aid in money only	-	-	-1.362	0.591	-1.593	0.530	-	-	-1.594	0.529
Aid in nature only	-	-	0.970	0.754	0.684	0.826	-	-	0.608	0.844
Debts	-	-	0.695	0.832	0.281	0.932	-	-	-0.100	0.976
Savings	-	-	-0.311	0.000	-0.309	0.000	-	-	-0.309	0.000
Bank account	-	-	5.747	0.000	5.830	0.000	-	-	5.866	0.000
Nobs	1178		1178		1178		1178		1178	
R2	0.1496		0.1883		0.1898		0.1735		0.1913	

Source: Own computations using June 2010 (EFSA II) surveys.

Table 12. Impact of displacements (without covariates)

	Emergency assistance		Food consumption score		Food consumption score, using assistance		Food assistance		Food consumption score, using food assistance	
	Marginal effect	P-value	Marginal effect	P-value	Marginal effect	P-value	Marginal effect	P-value	Marginal effect	P-value
Intercept	-	-	50.233	0.000	50.197	0.000	-	-	50.118	0.000
Assistance / Food assistance	-	-	-	-	0.324	0.889	-	-	0.977	0.683
Pre-earthquake assets	-0.002	0.021	0.255	0.000	0.256	0.000	-0.002	0.000	0.257	0.000
Pre-earthquake agricultural assets	0.001	0.058	0.022	0.555	0.021	0.566	0.001	0.058	0.020	0.584
Host household	-0.037	0.339	0.809	0.733	0.827	0.728	-0.038	0.270	0.870	0.715
Number of persons welcomed	0.029	0.479	0.207	0.866	0.202	0.870	0.030	0.400	0.190	0.877
Number of children welcomed	-0.059	0.171	-0.949	0.469	-0.937	0.476	-0.054	0.159	-0.913	0.487
Number of adults welcomed	-0.013	0.743	-0.561	0.648	-0.562	0.647	-0.016	0.662	-0.565	0.645
Some hosted people still remain	0.047	0.466	-1.118	0.695	-1.126	0.693	0.036	0.545	-1.132	0.692
All hosted people still remain	-0.004	0.920	-3.784	0.103	-3.786	0.103	0.016	0.725	-3.803	0.101
Religious association	0.005	0.901	-	-	-	-	0.008	0.801	-	-
Sports/ Cultural association	-0.002	0.980	-	-	-	-	0.014	0.868	-	-
Union	0.080	0.657	-	-	-	-	0.079	0.637	-	-
Cooperative	0.098	0.662	-	-	-	-	0.077	0.692	-	-
Tontine / Sol / Sabotay	0.113	0.414	-	-	-	-	0.093	0.445	-	-
Womenfolk's association	-0.011	0.856	-	-	-	-	-0.008	0.878	-	-
Consumer association	0.084	0.547	-	-	-	-	0.097	0.488	-	-
Konbit, Eskwad, other agric. assoc	0.020	0.570	-	-	-	-	0.018	0.538	-	-
Other social association	-0.017	0.825	-	-	-	-	-0.013	0.846	-	-
Nobs	613		613		613		613		613	
R2 / Pseudo R2	0.0729		0.0952		0.0953		0.0013		0.0955	

Source: Own computations using June 2010 (EFSA II) surveys.

Table 13. Impact of displacements (with covariates)

	Emergency assistance		Food consumption score		Food consumption score, using assistance		Food assistance		Food consumption score, using food assistance	
	Marginal effect	P-value	Marginal effect	P-value	Marginal effect	P-value	Marginal effect	P-value	Marginal effect	P-value
Intercept	-	-	48.987	0.000	48.836	0.000	-	-	48.928	0.000
Assistance / Food assistance	-	-	-	-	-1.973	0.391	-	-	-1.192	0.616
Pre-earthquake assets	0.000	0.943	0.154	0.001	0.152	0.002	-0.001	0.948	0.152	0.002
Pre-earthquake agricultural assets	0.000	0.943	-0.008	0.838	-0.007	0.862	0.000	0.948	-0.007	0.852
Host household	-0.019	0.943	-0.027	0.991	-0.152	0.948	-0.017	0.948	-0.108	0.963
Number of persons welcomed	0.007	0.944	0.846	0.480	0.877	0.465	0.006	0.949	0.865	0.471
Number of children welcomed	-0.023	0.943	-0.692	0.586	-0.760	0.550	-0.016	0.948	-0.729	0.567
Number of adults welcomed	0.003	0.952	-0.910	0.447	-0.896	0.454	0.002	0.957	-0.900	0.452
Some hosted people still remain	0.010	0.942	-4.612	0.100	-4.605	0.101	0.021	0.944	-4.613	0.100
All hosted people still remain	-0.016	0.945	-5.751	0.011	-5.800	0.010	-0.003	0.951	-5.761	0.011
Religious association	0.000	0.987	-	-	-	-	0.002	0.954	-	-
Sports/ Cultural association	-0.005	0.952	-	-	-	-	0.012	0.947	-	-
Union	0.225	0.906	-	-	-	-	0.194	0.915	-	-
Cooperative	0.066	0.932	-	-	-	-	0.035	0.942	-	-
Tontine / Sol /Sabotay	0.073	0.930	-	-	-	-	0.064	0.936	-	-
Womenfolk's association	-0.023	0.948	-	-	-	-	-0.015	0.953	-	-
Consumer association	0.049	0.935	-	-	-	-	0.071	0.935	-	-
Konbit, Eskwad, other agric. assoc	0,016	0.941	-	-	-	-	0.013	0.945	-	-
Other social association	-0.014	0.947	-	-	-	-	-0.012	0.952	-	-
Married	0.018	0.942	2.355	0.078	2.442	0.069	0.013	0.947	2.406	0.073
Female head	0.039	0.942	-3.421	0.013	-3.288	0.018	0.026	0.947	-3.342	0.016
Age of head	0.000	0.943	-0.040	0.451	-0.042	0.432	0.000	0.949	-0.041	0.446
Primary education	0.003	0.947	2.185	0.218	2.169	0.221	-0.005	0.949	2.166	0.222
Secondary education	-0.021	0.947	2.980	0.304	2.920	0.314	-0.007	0.950	2.964	0.306
Number of infants 0-5	0.009	0.943	0.051	0.939	0.084	0.901	0.005	0.948	0.065	0.923
Number of children 6-11	0.005	0.943	-0.063	0.912	-0.047	0.934	0.004	0.948	-0.055	0.923
Number of youths 12-17	0.004	0.943	1.075	0.067	1.080	0.066	0.000	0.980	1.068	0.069
Number of adults 18-60	0.007	0.943	-0.076	0.875	-0.042	0.931	0.005	0.948	-0.056	0.908
Number of elderly over 60	0.023	0.943	0.819	0.561	0.901	0.523	0.007	0.948	0.841	0.551
Number of sick persons	0.008	0.943	-0.974	0.502	-0.955	0.511	0.009	0.948	-0.956	0.511
Number of pregnant women	-0.019	0.943	1.532	0.496	1.509	0.503	-0.012	0.948	1.527	0.498

Number of lactating women	-0.038	0.943	0.967	0.576	0.847	0.625	-0.034	0.948	0.887	0.610
Number of disabled persons	-0.071	0.943	2.358	0.412	2.240	0.436	-0.045	0.948	2.299	0.424
Number of workers	0.003	0.943	0.674	0.099	0.691	0.092	0.001	0.948	0.684	0.095
Agricultural practice	0.052	0.943	-1.280	0.566	-1.146	0.608	0.043	0.947	-1.195	0.593
Agricultural production	0.710	0.981	8.347	0.025	8.528	0.023	0.595	0.986	8.425	0.024
Trade	0.859	0.971	8.655	0.014	8.820	0.012	0.785	0.980	8.732	0.013
Unskilled work	0.752	0.984	1.952	0.594	2.023	0.580	0.590	0.990	1.967	0.591
Skilled work	0.967	0.886	4.833	0.236	5.041	0.217	0.928	0.957	4.919	0.228
Other income source	0.963	0.867	8.358	0.091	8.569	0.084	0.962	0.911	8.468	0.087
Aid/transfers from abroad	-	-	0.419	0.911	0.557	0.882	-	-	0.475	0.899
Aid/transfers from Haiti	-	-	1.126	0.725	1.330	0.678	-	-	1.253	0.696
Aid in money only	-	-	3.420	0.362	3.254	0.386	-	-	3.298	0.380
Aid in nature only	-	-	-1.838	0.580	-1.857	0.576	-	-	-1.851	0.578
Aid in money and nature	-	-	4.695	0.275	4.661	0.278	-	-	4.687	0.276
Debts	-	-	2.216	0.164	2.146	0.179	-	-	2.182	0.172
Savings	-	-	-2.456	0.251	-2.402	0.262	-	-	-2.426	0.257
Bank account	-	-	9.369	0.000	9.460	0.000	-	-	9.422	0.000
Nobs	613		613		613		613		613	
R2	0.2114		0.2335		0.2345		0.2518		0.2338	

Source: Own computations using June 2010 (EFSA II) surveys.

Table 14a. Employment status, main income sources, cash/food-for-work and other transfers, by pre-earthquake quintile of wealth (directly affected areas)

In %	Before the earthquake						After the earthquake (February 2010)						After the earthquake (June 2010)					
	1	2	3	4	5	All	1	2	3	4	5	All	1	2	3	4	5	All
Directly affected areas																		
Number of households	250	259	239	254	244	1246	250	259	239	254	244	1246	250	259	239	254	244	1246
No workers	-	-	-	-	-	-	-	-	-	-	-	-	6.8	6.2	8.8	7.9	4.5	6.8
Workers dead/missing	-	-	-	-	-	-	-	-	-	-	-	-	5.6	8.1	9.6	8.7	11.5	8.7
Housing partially/totally destroyed	-	-	-	-	-	-	-	-	-	-	-	-	32.4	45.9	38.9	35.0	32.4	37.0
Asset losses	-	-	-	-	-	-	17.6	38.2	51.9	79.5	86.5	54.6	19.6	39.0	57.3	74.0	70.5	51.9
Agricultural losses	-	-	-	-	-	-	-	-	-	-	-	-	7.2	6.2	2.9	0.4	0.0	3.4
Main income source																		
Without sources of income	1.2	0.8	1.3	0.8	0.0	0.8	0.8	0.8	1.7	2.8	2.9	1.8	0.4	0.0	0.8	0.4	1.2	0.6
Agricultural production	37.6	15.4	4.2	1.6	0.4	12.0	38.0	15.1	5.0	1.6	0.4	12.1	38.8	15.1	5.0	2.0	0.4	12.4
Trade	29.6	32.4	39.7	42.5	42.2	37.2	26.4	24.3	31.4	35.4	30.3	29.5	28.0	27.8	31.4	36.2	35.7	31.8
Unskilled work	20.0	32.8	29.7	28.3	16.8	25.6	19.2	29.0	22.2	21.7	12.3	20.9	20.4	32.8	30.5	28.0	15.6	25.5
Skilled work	8.0	15.8	16.7	16.9	30.3	17.5	6.4	10.0	10.0	12.2	23.4	12.4	6.0	11.6	13.4	16.1	29.1	15.2
Cash-for-work	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.8	0.4	0.4	0.4	0.5	0.4	0.8	1.7	0.8	0.8	0.9
Remittances	2.0	1.2	3.8	3.9	5.3	3.2	4.4	8.9	13.4	12.2	16.0	10.9	4.0	6.2	8.4	9.1	9.8	7.5
Other income sources	1.6	1.5	4.6	5.9	4.9	3.7	4.4	11.2	15.9	13.8	14.3	11.9	2.0	5.8	8.8	7.5	7.4	6.3
Cash/food-for-work	1.6	1.9	2.1	2.0	0.8	1.7	4.8	4.2	4.2	5.9	4.1	4.7	6.0	6.9	4.2	8.7	5.3	6.3
Cash-for-work	0.8	1.5	1.7	1.6	0.4	1.2	4.4	3.9	3.8	5.5	4.1	4.3	5.6	6.2	4.2	8.3	5.3	6.0
Food-for-work	0.8	0.8	0.8	0.8	0.4	0.7	0.8	1.2	1.3	0.8	0.4	0.9	0.4	1.5	1.7	0.8	0.8	1.0
Aid/transfers received from relatives/friends																		
from Haiti	14.1	17.0	25.3	25.6	29.1	22.1	10.4	13.9	24.9	23.6	23.4	19.1	9.2	11.6	22.8	22.4	22.1	17.5
from abroad	14.5	11.6	15.6	21.3	34.4	19.4	10.4	9.7	12.7	18.5	28.7	15.9	8.4	7.7	8.9	13.0	21.7	11.9
Assistance																		
Food	-	-	-	-	-	-	-	-	-	-	-	-	23.3	33.2	37.9	33.9	33.6	32.3
Non food (material)	-	-	-	-	-	-	-	-	-	-	-	-	14.8	10.0	10.0	12.6	10.2	11.6
Healthcare	-	-	-	-	-	-	-	-	-	-	-	-	10.0	14.3	12.1	20.1	18.9	15.1
Agricultural	-	-	-	-	-	-	-	-	-	-	-	-	10.6	2.4	2.2	0.8	0.4	3.3

Source: Own computations using June 2010 (EFSA II) surveys.

Table 14b. Employment status, main income sources, cash/food-for-work and other transfers, by pre-earthquake quintile of wealth (non-directly affected areas)

In %	Before the earthquake						After the earthquake (February 2010)						After the earthquake (June 2010)					
	1	2	3	4	5	All	1	2	3	4	5	All	1	2	3	4	5	All
Non-directly affected areas																		
Number of households	151	109	130	130	130	650	151	109	130	130	130	650	151	109	130	130	130	650
Non workers	-	-	-	-	-	-	-	-	-	-	-	-	10.6	5.5	3.1	3.8	6.2	6.0
Hosting displaced people	-	-	-	-	-	-	-	-	-	-	-	-	24.5	26.6	36.2	60.8	63.8	42.3
Main income source																		
Without sources of income	0.0	0.0	0.8	0.0	1.5	0.5	0.0	0.9	1.5	1.5	6.2	2.0	0.0	0.0	0.0	0.0	0.0	0.0
Agricultural production	54.3	59.6	52.3	21.5	5.4	38.5	55.0	57.8	52.3	20.0	4.6	37.8	54.3	56.9	54.6	22.3	5.4	38.6
Trade	23.8	19.3	22.3	25.4	42.3	26.8	22.5	17.4	23.1	26.2	34.6	24.9	24.5	19.3	21.5	24.6	34.6	25.1
Unskilled work	18.5	15.6	13.8	30.8	20.8	20.0	17.2	15.6	13.1	30.0	20.8	19.4	17.2	15.6	13.1	31.5	22.3	20.0
Skilled work	2.6	2.8	6.2	10.0	12.3	6.8	2.6	2.8	5.4	10.0	13.8	6.9	2.0	2.8	5.4	10.8	16.2	7.4
Cash-for-work	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.2
Remittances	0.7	0.9	1.5	5.4	13.1	4.3	1.3	2.8	1.5	6.2	13.1	4.9	0.7	2.8	2.3	6.2	14.6	5.2
Other income sources	0.0	1.8	3.1	6.9	4.6	3.2	1.3	2.8	3.1	6.2	6.9	4.0	1.3	2.8	3.1	4.6	6.2	3.5
Cash/food-for-work	13.2	11.0	3.8	1.5	2.3	6.5	11.3	7.3	2.3	0.8	2.3	4.9	11.3	8.3	2.3	0.8	0.8	4.8
Cash-for-work	6.0	3.7	0.0	0.8	1.5	2.5	4.0	3.7	0.0	0.8	1.5	2.0	6.0	3.7	0.0	0.8	0.8	2.3
Food-for-work	8.6	10.1	3.8	0.8	0.8	4.8	9.3	6.4	2.3	0.0	0.8	3.8	7.9	7.3	2.3	0.0	0.0	3.5
Aid/transfers received from relatives/friends																		
from Haiti	23.2	37.6	40.0	26.9	19.2	28.9	23.8	30.3	16.9	13.1	20.8	20.8	23.2	27.5	16.9	13.1	16.9	19.4
from abroad	2.0	4.6	9.2	13.1	26.9	11.1	0.7	3.7	6.9	7.7	25.4	8.8	0.7	3.7	6.2	9.2	21.5	8.2
Assistance																		
Food	-	-	-	-	-	-	-	-	-	-	-	-	12.0	12.8	13.1	5.4	0.8	8.8
Non food (material)	-	-	-	-	-	-	-	-	-	-	-	-	0.0	0.0	0.0	0.0	2.3	0.5
Healthcare	-	-	-	-	-	-	-	-	-	-	-	-	0.0	0.0	0.0	0.0	3.1	0.6
Agricultural	-	-	-	-	-	-	-	-	-	-	-	-	1.4	4.7	5.6	3.7	0.0	3.0

Source: Own computations using June 2010 (EFSA II) surveys.

Table 15a. Cash and food-for-work determinants

	Cash-for-work				Food-for-work				Cash or food-for-work			
	Directly affected areas		Non-directly affected areas		Directly affected areas		Non-directly affected areas		Directly affected areas		Non-directly affected areas	
	Marginal effect	P-value	Marginal effect	P-value	Marginal effect	P-value	Marginal effect	P-value	Marginal effect	P-value	Marginal effect	P-value
Cash-for-work before the quake	0.453	0.000	0.711	0.000	0.067	0.004	0.217	0.000	0.380	0.000	0.567	0.000
Food-for-work before the quake	0.128	0.111	0.048	0.027	0.640	0.000	0.527	0.000	0.485	0.000	0.450	0.000
Pre-earthquake assets	-0.001	0.233	0.000	0.245	0.000	0.961	-0.001	0.149	-0.001	0.184	-0.001	0.070
Asset losses in February	0.002	0.104	0.001	0.460	0.000	0.611	0.001	0.398	0.001	0.182	0.001	0.216
Number of households	1180		613		1180		613		1180		613	
R2	0.0553		0.5332		0.3083		0.4519		0.0775		0.4581	

Source: Own computations using June 2010 (EFSA II) surveys.

Table 15b. Cash and food-for-work determinants

	Cash-for-work				Food-for-work				Cash or food-for-work			
	Directly affected areas		Non-directly affected areas		Directly affected areas		Non-directly affected areas		Directly affected areas		Non-directly affected areas	
	Marginal effect	P-value	Marginal effect	P-value	Marginal effect	P-value	Marginal effect	P-value	Marginal effect	P-value	Marginal effect	P-value
Cash-for-work before the quake	0.457	0.000	0.703	0.000	0.068	0.004	0.197	0.000	0.384	0.000	0.548	0.000
Food-for-work before the quake	0.115	0.152	0.048	0.033	0.645	0.000	0.516	0.000	0.474	0.000	0.437	0.000
Pre-earthquake assets	0.000	0.679	0.000	0.280	0.000	0.748	0.000	0.201	0.000	0.596	-0.001	0.114
Asset losses in February	0.001	0.314	0.001	0.431	0.000	0.921	0.001	0.466	0.001	0.485	0.001	0.243
Pre-earthquake agricultural assets	0.000	0.693	-	-	0.000	0.705	-	-	0.000	0.729	-	-
Agricultural asset losses	-0.004	0.075	-	-	0.001	0.439	-	-	-0.004	0.103	-	-
Number of workers dead/missing	-0.021	0.236	-	-	-0.008	0.259	-	-	-0.021	0.232	-	-
Hosting displaced people	-	-	-0.007	0.648	-	-	0.009	0.624	-	-	0.000	0.991
Number of children hosted	-	-	0.008	0.177	-	-	0.015	0.033	-	-	0.017	0.038
Number of adults hosted	-	-	0.003	0.442	-	-	0.001	0.737	-	-	0.001	0.783
Number of elderly people hosted	-	-	-0.003	0.917	-	-	-0.001	0.965	-	-	-0.009	0.824
Some hosted people still remain	-	-	0.002	0.898	-	-	-0.032	0.173	-	-	-0.014	0.598
All hosted people still remain	-	-	0.009	0.553	-	-	0.004	0.842	-	-	0.004	0.870
Housing damaged but still usable	0.022	0.266	-	-	-0.004	0.630	-	-	0.025	0.223	-	-
Housing partially or totally destroyed	0.024	0.327	-	-	0.003	0.773	-	-	0.028	0.258	-	-
Sleeping beside the house	0.003	0.913	-	-	-0.006	0.554	-	-	0.004	0.879	-	-
Sleeping in the neighborhood	0.035	0.305	-	-	-0.015	0.235	-	-	0.032	0.364	-	-
Sleeping in the commune	0.044	0.225	-	-	-0.014	0.325	-	-	0.038	0.301	-	-
Sleeping outside the commune	0.012	0.834	-	-	-0.018	0.395	-	-	0.005	0.936	-	-
Sleeping in a camp	0.000	0.990	-	-	0.016	0.192	-	-	0.006	0.852	-	-
Religious association	-0.019	0.244	-0.015	0.300	0.000	0.955	-0.037	0.044	-0.015	0.341	-0.045	0.037
Sports/ Cultural association	0.038	0.406	-0.034	0.295	-0.027	0.112	-0.030	0.448	0.025	0.591	-0.039	0.405
Union	-0.062	0.791	-0.013	0.817	-0.012	0.890	0.148	0.036	-0.062	0.793	0.166	0.047
Cooperative	0.277	0.045	0.003	0.958	0.021	0.684	0.033	0.675	0.284	0.043	0.027	0.768
Tontine / Sol / Sabotay	0.035	0.332	0.125	0.001	0.007	0.586	-0.033	0.477	0.027	0.459	0.091	0.094
Womenfolk's association	-0.041	0.435	-0.016	0.578	-0.003	0.868	0.017	0.613	-0.043	0.418	-0.006	0.878
Consumer association	-0.045	0.737	-0.002	0.970	0.000	0.994	-0.050	0.329	-0.048	0.726	-0.059	0.325

Konbit, eskwad, other agricultural association	0.007	0.892	0.011	0.422	-0.003	0.882	0.058	0.001	0.006	0.909	0.050	0.010
School committee	-0.062	0.490	-0.004	0.949	-0.010	0.772	-0.005	0.952	-0.058	0.522	-0.015	0.873
Other social association	0.133	0.050	-0.001	0.988	0.080	0.002	0.009	0.838	0.131	0.057	0.006	0.908
Number of households	1180		613		1180		613		1180		613	
R2	0.0772		0.5452		0.3191		0.4819		0.0984		0.4788	

Source: Own computations using June 2010 (EFSA II) surveys.

Table 15c. Cash and food-for-work determinants

	Cash-for-work				Food-for-work				Cash or food-for-work			
	Directly affected areas		Non-directly affected areas		Directly affected areas		Non-directly affected areas		Directly affected areas		Non-directly affected areas	
	Marginal effect	P-value	Marginal effect	P-value	Marginal effect	P-value	Marginal effect	P-value	Marginal effect	P-value	Marginal effect	P-value
Cash-for-work before the quake	0.436	0.000	0.697	0.000	0.055	0.022	0.168	0.000	0.358	0.000	0.518	0.000
Food-for-work before the quake	0.103	0.205	0.043	0.071	0.643	0.000	0.485	0.000	0.458	0.000	0.399	0.000
Pre-earthquake assets	0.000	0.538	0.000	0.488	0.000	0.560	-0.001	0.236	-0.001	0.358	-0.001	0.222
Asset losses in February	0.000	0.548	0.000	0.836	0.000	0.658	0.000	0.945	0.000	0.609	0.000	0.776
Pre-earthquake agricultural assets	0.001	0.298	-	-	0.000	0.443	-	-	0.001	0.266	-	-
Agricultural asset losses	-0.005	0.028	-	-	0.000	0.566	-	-	-0.005	0.038	-	-
Number of workers dead/missing	-0.016	0.399	-	-	-0.009	0.223	-	-	-0.017	0.355	-	-
Hosting displaced people	-	-	-0.005	0.727	-	-	0.014	0.453	-	-	0.006	0.772
Number of children hosted	-	-	0.008	0.177	-	-	0.015	0.031	-	-	0.017	0.043
Number of adults hosted	-	-	0.003	0.492	-	-	-0.002	0.700	-	-	-0.002	0.784
Number of elderly people hosted	-	-	0.003	0.914	-	-	-0.001	0.975	-	-	-0.005	0.899
Some hosted people still remain	-	-	0.000	0.991	-	-	-0.024	0.306	-	-	-0.008	0.780
All hosted people still remain	-	-	0.012	0.460	-	-	0.012	0.527	-	-	0.011	0.614
Housing damaged but still usable	0.020	0.325	-	-	-0.003	0.722	-	-	0.023	0.277	-	-
Housing partially or totally destroyed	0.024	0.332	-	-	0.006	0.500	-	-	0.029	0.263	-	-
Sleeping beside the house	0.024	0.420	-	-	-0.008	0.479	-	-	0.023	0.454	-	-
Sleeping in the neighborhood	0.058	0.124	-	-	-0.018	0.215	-	-	0.052	0.169	-	-
Sleeping in the commune	0.074	0.063	-	-	-0.016	0.289	-	-	0.065	0.107	-	-
Sleeping outside the commune	0.042	0.487	-	-	-0.018	0.427	-	-	0.034	0.578	-	-
Sleeping in a camp	0.010	0.782	-	-	0.018	0.156	-	-	0.016	0.642	-	-
Religious association	-0.005	0.778	-0.020	0.190	0.001	0.930	-0.033	0.073	-0.002	0.896	-0.047	0.032
Sports/ Cultural association	0.039	0.404	-0.027	0.425	-0.018	0.296	-0.019	0.645	0.027	0.569	-0.036	0.459
Union	-0.027	0.911	-0.032	0.590	0.004	0.969	0.154	0.033	-0.027	0.911	0.165	0.054
Cooperative	0.226	0.112	-0.007	0.914	0.006	0.912	0.052	0.505	0.233	0.106	0.042	0.652
Tontine / Sol / Sabotay	0.026	0.495	0.109	0.005	0.007	0.626	-0.041	0.387	0.020	0.606	0.075	0.180
Womenfolk's association	-0.030	0.576	-0.020	0.482	-0.004	0.835	0.020	0.556	-0.033	0.550	-0.009	0.823
Consumer association	-0.013	0.924	-0.005	0.909	-0.002	0.971	-0.057	0.264	-0.018	0.894	-0.067	0.268

Konbit, eskwad, other agricultural association	0.011	0.834	0.009	0.515	0.007	0.712	0.060	0.001	0.009	0.875	0.052	0.011
School committee	-0.074	0.419	-0.009	0.894	0.007	0.845	0.011	0.891	-0.065	0.484	0.003	0.974
Other social association	0.125	0.071	0.008	0.847	0.080	0.002	0.014	0.776	0.124	0.078	0.010	0.869
Married	-0.041	0.015	0.008	0.418	-0.001	0.884	-0.020	0.086	-0.038	0.027	-0.008	0.530
Female head	-0.036	0.018	-0.003	0.752	0.006	0.292	0.002	0.841	-0.031	0.044	0.005	0.697
Age of head	-0.001	0.326	0.000	0.438	0.000	0.225	0.000	0.851	-0.001	0.300	0.000	0.649
Primary education	-0.002	0.891	-0.004	0.772	0.000	0.944	-0.025	0.096	0.004	0.835	-0.022	0.224
Secondary education	0.013	0.680	0.014	0.525	-0.003	0.816	-0.003	0.913	0.011	0.714	0.019	0.529
Tertiary education	-0.031	0.551	-0.001	0.971	-0.013	0.503	-0.024	0.581	-0.023	0.666	-0.027	0.605
Living in private housing	0.050	0.038	-0.006	0.611	0.003	0.731	0.020	0.129	0.048	0.046	-0.008	0.621
Number of infants 0-5	-0.001	0.905	0.004	0.352	0.002	0.575	-0.005	0.380	-0.001	0.949	0.001	0.885
Number of children 6-11	-0.011	0.091	-0.007	0.067	0.001	0.558	0.007	0.139	-0.012	0.067	0.003	0.554
Number of youths 12-17	-0.003	0.696	0.004	0.343	0.003	0.274	-0.001	0.844	-0.002	0.729	0.000	0.946
Number of adults 18-60	0.006	0.519	-0.001	0.753	0.011	0.002	-0.006	0.126	0.010	0.265	-0.010	0.030
Number of elderly over 60	0.018	0.352	-0.001	0.903	-0.007	0.347	0.019	0.098	0.024	0.235	0.010	0.475
Number of sick persons	0.009	0.485	-0.016	0.123	-0.004	0.403	-0.018	0.146	0.007	0.602	-0.023	0.110
Number of pregnant women	-0.025	0.294	-0.006	0.720	0.002	0.841	0.008	0.663	-0.025	0.304	0.003	0.891
Number of lactating women	-0.023	0.254	0.027	0.023	-0.003	0.661	0.021	0.150	-0.018	0.375	0.036	0.039
Number of disabled people	0.012	0.767	-0.003	0.903	0.021	0.167	-0.009	0.727	0.012	0.773	-0.006	0.841
Number of workers	-0.006	0.459	-0.002	0.453	-0.010	0.002	0.004	0.224	-0.010	0.234	0.007	0.096
Agricultural practice	-0.023	0.475	0.000	0.981	-0.012	0.296	0.019	0.312	-0.031	0.340	0.013	0.571
Agricultural production	0.040	0.693	0.003	0.968	0.012	0.752	-0.013	0.875	0.046	0.655	-0.034	0.733
Trade	0.067	0.495	0.008	0.912	0.009	0.818	0.026	0.751	0.068	0.492	0.001	0.992
Unskilled work	0.061	0.538	0.009	0.900	0.022	0.548	0.060	0.473	0.071	0.476	0.041	0.679
Skilled work	0.026	0.792	-0.006	0.931	0.014	0.714	0.029	0.736	0.025	0.802	-0.006	0.948
Transfers	0.071	0.499	-0.024	0.739	0.007	0.866	0.022	0.797	0.072	0.503	-0.022	0.829
Other income source	0.048	0.644	0.013	0.860	0.012	0.750	0.027	0.753	0.052	0.624	0.009	0.928
Savings	0.041	0.007	-0.017	0.179	-0.001	0.897	-0.007	0.659	0.035	0.023	-0.023	0.223
Bank account	0.000	0.981	0.024	0.154	0.017	0.010	0.025	0.211	0.006	0.746	0.042	0.075

Number of households	1154	609	1154	609	1154	609
R2	0.1059	0.5631	0.3398	0.5198	0.1252	0.5104

Source: Own computations using June 2010 (EFSA II) surveys.

Table 16. Descriptive statistics

	Directly affected areas		Non-directly affected areas	
	Mean	Std	Mean	Std
Cash-for-work before the quake	0.01	0.11	0.02	0.15
Food-for-work before the quake	0.01	0.09	0.04	0.20
Pre-earthquake assets	35.57	18.84	25.15	21.81
Asset losses in February	4.18	11.37	1.05	5.31
Pre-earthquake agricultural assets	8.19	17.13	-	-
Agricultural asset losses	-0.05	3.16	-	-
Number of workers dead/missing	0.11	0.41	-	-
Hosting displaced people	-	-	0.42	0.49
Number of children hosted	-	-	0.38	0.89
Number of adults hosted	-	-	0.94	1.64
Number of elderly people hosted	-	-	0.02	0.17
Some hosted people still remain	-	-	0.08	0.26
All hosted people still remain	-	-	0.15	0.36
Housing damaged but still usable	0.45	0.50	-	-
Housing partially or totally destroyed	0.37	0.48	-	-
Sleeping beside the house	0.09	0.28	-	-
Sleeping in the neighborhood	0.27	0.44	-	-
Sleeping in the commune	0.18	0.39	-	-
Sleeping outside the commune	0.02	0.14	-	-
Sleeping in a camp	0.45	0.50	-	-
Religious association	0.25	0.44	0.11	0.31
Sports/ Cultural association	0.02	0.15	0.02	0.14
Union	0.00	0.03	0.01	0.08
Cooperative	0.00	0.05	0.00	0.07
Tontine / Sol / Sabotay	0.04	0.19	0.01	0.12
Womenfolk's association	0.02	0.13	0.03	0.16
Consumer association	0.00	0.05	0.01	0.11
Konbit, eskwad, other agricultural association	0.02	0.14	0.12	0.33
School committee	0.01	0.08	0.00	0.07

Other social association	0.01	0.10	0.01	0.12
Married	0.26	0.44	0.47	0.50
Female head	0.51	0.50	0.53	0.50
Age of head	41.84	13.52	44.71	14.57
Primary education	0.40	0.49	0.27	0.44
Secondary education	0.07	0.25	0.07	0.26
Tertiary education	0.03	0.16	0.02	0.14
Living in private housing	0.45	0.50	0.77	0.42
Number of infants 0-5	0.69	0.87	0.98	1.08
Number of children 6-11	0.79	1.10	1.18	1.17
Number of youths 12-17	0.78	1.11	0.98	1.14
Number of adults 18-60	3.19	1.91	3.35	2.12
Number of elderly over 60	0.18	0.43	0.27	0.56
Number of sick persons	0.32	0.54	0.25	0.49
Number of pregnant women	0.09	0.30	0.09	0.29
Number of lactating women	0.18	0.40	0.20	0.41
Number of disabled people	0.03	0.18	0.06	0.24
Number of workers	3.02	2.01	3.05	2.34
Agricultural practice	0.24	0.43	0.67	0.47
Agricultural production	0.12	0.32	0.39	0.49
Trade	0.37	0.48	0.27	0.45
Unskilled work	0.26	0.44	0.20	0.40
Skilled work	0.18	0.38	0.07	0.25
Transfers	0.03	0.18	0.04	0.20
Other income source	0.04	0.19	0.03	0.17
Savings	0.36	0.48	0.26	0.44
Bank account	0.35	0.48	0.18	0.39

Source: Own computations using June 2010 (EFSA II) survey.