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Preventive versus Recuperative Targeting of Food Aid: Accounting for the Costs

Final Cost Report

IFPRI - Cornell University - World Vision-Haiti Team

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ACRONYMS USED

ADP	Area Development Program
BCC	behavior change and communication
CDC	Centers for Disease Control and Prevention
CER	cost-effectiveness ratio
CRS	Catholic Relief Services
CTS	Commodity Tracking System
DAP	Development Activity Program
FY	Fiscal Year
HAZ	height-for-age Z-score
IFPRI	International Food Policy Research Institute
LSMS	Living Standards Measurement Survey
MCHN	Maternal and Child Health and Nutrition
MSPP	Ministère de la Santé Publique et de la Population
NCHS	National Center for Health Statistics
SFB	soy-fortified bulgur
USAID	United States Agency for International Development
WAZ	weight-for-age Z-score
WHO	World Health Organization
WHZ	weight-for-height Z-score
WSB	wheat-soy blend
WV	World Vision

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EXECUTIVE SUMMARY

Background and objectives

In this report, we present an analysis of the costs of the Maternal and Child Health and Nutrition (MCHN) Program implemented by World Vision (WV) in the rural Central Plateau region of Haiti. Our primary objective is to provide the cost ingredients for a relative cost-effectiveness analysis of two different models for targeting and delivering an integrated nutrition and health program that includes food supplements; this latter analysis will be included in the final evaluation report. The first model is the traditional *recuperative* approach, whereby children under five years of age are targeted to receive food supplements, nutrition counseling, and follow-up (for nine months), only after being identified as underweight for their age. The second, so-called *preventive* model, targets all children below two years of age, irrespective of their nutritional status. The two models are being implemented in selected parts of three Communes in the Central Plateau, referred to as *pilot areas*.

The primary hypothesis being tested is that the preventive and recuperative models differ in their relative effectiveness in reducing malnutrition. In addition to differing in terms of their impacts, however, they are also likely to differ in terms of their costs. It is important, therefore, to assess whether there is a trade-off between differences in costs and differences in effectiveness; we will do this by calculating the relative cost-effectiveness of the two models in the final evaluation report.

This report outlines the methodology for calculating the costs associated with the two models and their relative cost-effectiveness, delineates the costs to be measured, and provides estimates and analysis of the costs of the program—where possible identifying costs that vary across the two models. The results will be used in the subsequent cost-effectiveness analysis. A broader objective is to develop a methodology that others might use to assess the cost-effectiveness of similar MCHN-food assisted programs, currently popular models of development assistance to low-income countries.

Methodology

The *cost-effectiveness* of a program is calculated as the cost per unit of impact, typically referred to as the cost-effectiveness ratio (CER). The pilot study will evaluate the relative effectiveness of the programs using a set of internationally agreed upon measures of child undernutrition. Compared to effectiveness, the numerator in the CER is conceptually straightforward because most costs can be measured using a single, linear, metric: money. A complication regarding costs, however, is that a full accounting of the costs typically requires the analyst to cast the net more widely than just an analysis of the program budget or accounting information alone. There are a number of activities (and their associated costs) that take place outside the formal framework (and budget) of many programs, and WV-Haiti is no exception (for example, the provision of food and medical supplies).

After capturing and valuing as best possible the full range of costs feeding into the overall program, the final step in this analysis is to identify and isolate the costs that pertain *specifically* to the pilot areas and, within these areas, to identify the costs that pertain to each

intervention model, since the numerator, effectiveness, is being measured at this level. Only when this is done will the measures of costs and effectiveness be on the same basis, allowing assessment of the relative CER. We do this by allocating costs in the Central Plateau to the pilot areas based on the fraction of beneficiaries served in those areas.

Costs can be categorized as *program*, *private*, or *social* costs. Program costs can be categorized further as those financed directly out of the program budget (e.g., administrative salaries) and those financed by other agencies but forming an integral part of the program (e.g., donated food and medical supplies). We refer to the former as on-budget, or direct, program costs, and the latter as off-budget program costs. Private costs are those borne by program beneficiaries (e.g., travel costs) or other individuals associated with the program, including, for example, the health promoter assistants. Social costs are those paid for by other actors in society (e.g., costs undertaken by the Ministry of Transportation). Often, only direct program costs are considered in cost estimates, and off-budget program, private, and social costs are ignored. Each of the above costs can be incurred as financial or in-kind (often time) costs. Many of the costs can also be treated as *fixed* or *variable*. By highlighting and considering these (overlapping) categories and characteristics for assessing costs associated with the program, we ensure a comprehensive analysis that guards against missing important resource allocations made in program operation.

Program costs in the Central Plateau

In this report, we estimate direct and off-budget program costs for MCHN in Central Plateau, using accounting and other information provided by WV-Haiti. The data beneficiary shows that the program grew substantially over the four years, quadrupling the number of beneficiaries served in the first year (partial) year of operations. Program costs also rose, though not as dramatically, consistent with economies of scale. The estimate for full program costs in the Central Plateau from October 2001 to September 2005 is $16 million. In fiscal year 2005, the costs were just over $5 million, fully 40 percent of which was the value of food distributed to beneficiaries. Ignoring the value of the donated food distributed would have underestimated the program costs substantially. The value of medical supplies, on the other hand, appears to be less important in the overall costs (less than 1 percent).

Program costs in the pilot areas

The pilot areas represent about a fifth of the overall Development Activity Program (DAP) intervention area in the Central Plateau region, and therefore comprise only a small part of the overall costs. We estimate total costs for the pilot areas to be approximately $2.4 million over the period. Overall, nearly 60 percent of this was for the preventive model and the remaining 40 percent for the recuperative model. These figures, however, mask the fact that in the most recent fiscal year 2005, costs in the preventive area are 1.5 times those in the recuperative area, reflecting the unequal numbers of program beneficiaries between the two models. This is due to two factors: (1) there are more children under two years of age (targeted in the preventive model) than malnourished children under five (targeted in the recuperative model); and (2) beneficiaries in the recuperative model (i.e., malnourished children) receive program benefits for a maximum of 9 months, whereas in the preventive model, children can

receive benefits for up to 18 months (i.e., from 6 months of age until they reach 24 months of age). We also estimate a crude measure of the cost per beneficiary per month—$26 ($15 direct program costs and $11 off-budget program costs) in FY 2005.

Private costs

We outline and carry out a strategy for estimating *private* costs, based on the opportunity cost of beneficiaries' time. Most of the private costs that stem from the program are time costs incurred by beneficiaries to complete program requirements. About 85 percent of caregivers in the 2002 baseline sample survey reported being involved in income-generating activities in the past year. Even for those women who did not lose earnings or did not report working, however, we must still value their time spent in complying with program requirements. We use the 2001 Haitian Living Standards Measurement Survey to calculate daily earnings for rural women who live and work in Central Plateau.

With an approximate value of time in hand, we turn to an assessment of the amount of time, per month, that pregnant and lactating women or mothers must invest to fulfill the program requirements. Using operations research and household survey data, we estimate the average time required to fulfill each of the program components and then the total time, which we approximate as 12 hours per month per beneficiary. Valuing this 12 hours as one-and-a-half day's wages, then, we approximate additional private costs of the intervention at $3 per beneficiary per month. Examined from the point of view of the cost per beneficiary-month in the final year, these $3 comprise over 10 percent of the full program costs of $26. So, while our estimate of the value of women's time turns out not to be a major cost component relative to the program as a whole, at just over 10 percent of the per beneficiary costs, it is nontrivial.

Interviews with health promoters and health promoter assistants in the pilot areas revealed that the health promoters in the preventive areas and health promoter assistants in both areas put additional hours or effort in their work. It is appropriate to recognize at least part of their time as voluntary contributions to the program, which we should treat as private costs. Compared to the overall program, however, these costs also turn out to be only a small portion.

The primary hypothesis being tested in the overall project is that the preventive and recuperative models differ in their relative effectiveness in reducing malnutrition. A concern for assessing the relevance of any such differences is that the two models also differ in terms of their costs. We have shown that such a concern is justified; the preventive model is far more costly than the recuperative model. How important this difference is awaits the final impact assessment of the two programs.

1. INTRODUCTION

1.1 Background

Haiti is the poorest country in the Western Hemisphere. In 1999/2000, the national poverty rate was 48 percent, and rural rates were even higher, calculated using a food-based expenditure poverty line that was under a dollar a day (Pederson and Lockwood 2001). Using nominal one dollar-a-day (extreme) and two dollar-a-day (moderate) poverty lines (not comparable to Pederson and Lockwood's) and an income approach, Sletten and Egset (2004) calculate 56 percent extreme poor and 76 percent extreme poor or poor in 2001, and also find greater poverty in rural areas. Whichever numbers one chooses, the extent of poverty is severe. This fact is manifested in other indicators as well; in 2003, the infant mortality rate was 76 per 1,000 births and the average life expectancy was 52 years. Malnutrition (stunting) in 2000 was 23 percent (MSPP 2001).

In this report, we present an analysis of the costs of the Maternal and Child Health and Nutrition (MCHN) Program implemented by World Vision (WV) in the rural Central Plateau region of Haiti. Our primary objective is to provide the cost ingredients for a relative cost-effectiveness analysis of two different models for targeting and delivering an integrated nutrition and health program that includes food supplements; this latter analysis will be included in the final evaluation report. The first model is the traditional *recuperative* approach, whereby children under five years of age are targeted to receive food supplements, nutrition counseling, and follow-up (for nine months), only after being identified as underweight for their age. The second, so-called *preventive* model, targets all children below two years of age, irrespective of their nutritional status. In the preventive model, children are targeted during the period of highest growth velocity and thus maximum potential to benefit from a nutrition intervention, before their growth falters. It is expected that the health and nutrition interventions throughout these critical first two years of life will have both short- and long-term benefits on growth (IFPRI 2001).

The evaluation of the impact on nutritional status of these two different MCHN models is being conducted over a four-year period by the International Food Policy Research Institute (IFPRI) and Cornell University, in collaboration with WV-Haiti (IFPRI 2001). The primary objective of the study is to compare the impact on nutrition between the models, examining: (1) attained growth as measured by the mean and distribution of weight-for-age Z-scores (WAZ), height-for-age Z-scores (HAZ), and weight-for-height Z-scores (WHZ); and (2) the prevalence of undernutrition as measured by stunting (HAZ < -2), wasting (WHZ < -2), and underweight (WAZ < -2). The two models are being implemented in selected parts of three Communes in the Central Plateau region, referred to in this study as *pilot areas*. An initial baseline survey was conducted in the pilot areas in 2002, the first year of the project, before food distribution started. To assess the relative impact of the interventions on children's nutritional status, a follow-up evaluation survey was completed in 2005, three years after the baseline. Operational research methods were used throughout, both to identify constraints to effective implementation and to design and implement corrective measures in an ongoing fashion (Loechl et al. 2005; Menon et al. 2005). In addition to conducting the impact and operations research of the two program

models, the IFPRI-Cornell University team also provided WV-Haiti with technical assistance, further developing and refining the program models.

The primary hypothesis being tested is that the preventive and recuperative models differ in their relative effectiveness in reducing malnutrition. In addition to differing in terms of their impacts, however, they are also likely to differ in terms of their costs. It is important, therefore, to assess whether there is a trade-off between differences in costs and differences in effectiveness; we will do this by calculating the relative cost-effectiveness of the two models in the final evaluation report. For example, if the preventive model generates a larger impact (as we expect), but in doing so incurs more costs (as we expect), then it is possible that, in spite of being more effective as measured by nutritional impact on the target population, it would not be considered more cost-effective.

During the study period, Haiti has undergone a series of political crises, accompanied by poor macroeconomic performance. A politically volatile latter half of 2003, marked by increasing violence, culminated in the exile of President Aristide in February, 2004. Political unrest and violence did not stop with his exile, however, and continues to the present, as evidenced by the continued United Nations forces presence. In addition, there were substantial floods in the country in 2004, though they were not concentrated in the program areas. From 2000 to 2003, real per capita GDP in 2005 dollars declined from $563 to $367, though it began to rise again in 2004, to $425. The gourde depreciated from 19.6 to the dollar in 2000 to 41.5 in 2005, and inflation ran at approximately 20 percent a year, on average. It is important to keep Haiti's initial starting point and its recent difficult context in mind when interpreting our results; the latter undoubtedly increased the logistical, and possibly other, operating costs of the program.

1.2 Objectives of the cost analysis

As a precursor and necessary input into the cost-effectiveness analysis, this report presents estimates and analysis of key costs associated with the MCHN program—identifying in particular costs that vary across the two models. While the primary objective is the presentation of the methodology for calculating costs associated with the two models, the analysis also provides insight into the relative cost shares of different program components, and their evolution during the program cycle. For example, we estimate the costs of various components of the program that are not formally part of the WV-Haiti accounting framework, including the food rations (provided by USAID) and health supplies (provided by the Ministry of Health) distributed to program beneficiaries.

The specific objectives of this report are

- to delineate all the cost components to be measured to arrive at the full program cost; and
- to calculate and analyze the various cost components associated with the program during the evaluation period (from October 2001 through September 2005).

Another potential use for this analysis lies in its assessment of the resources necessary to undertake or sustain a similar intervention in similar settings (Adam 2006). Finally, a broader implicit objective is to develop a methodology that others might use to assess the cost-

effectiveness of similar MCHN-food assisted programs, currently popular models of development assistance to low-income countries.

1.3 Description of the WV-Haiti MCHN program

WV-Haiti has been implementing privately funded Area Development Programs (ADPs) in different parts of Haiti since 1976. Activities under this program include child sponsorship, health, agricultural production and natural resource management, education, small business, and water projects; but they do not include food distribution. WV-Haiti has been carrying out food distribution activities since 1994, when it began distributions in La Gonave. Initially, WV-Haiti operated as an implementing agency for Catholic Relief Services (CRS), one of USAID's Cooperating Sponsors. In 2002, however, WV-Haiti itself became a USAID Cooperating Sponsor, when it began implementing a five-year PL 480 Title II Development Activity Program (DAP) (not to be confused with ADP) in six Communes of the Central Plateau region and on the island of La Gonave, with regional offices in Hinche (Central Plateau) and Anse-à-Galets (La Gonave). The DAP activities focus on MCHN, but also include much smaller programs in agricultural production and school feeding.

The WV-Haiti MCHN program, under both the preventive and recuperative models, offers services at five contact points between program staff and beneficiaries. These include (1) *Rally Posts*, where health education, growth monitoring and promotion, and preventive health care are provided and program beneficiaries[1] are identified; (2) *Mothers' Clubs*, in which small groups of beneficiaries gather to discuss health, hygiene, and nutrition topics in the context of the program's behavior change and communication (BCC) strategy (Menon et al. 2002); (3) *Pre- and Postnatal Consultations*, where pregnant and lactating women receive preventive health care and education; (4) *Food Distribution Points*, where program beneficiaries receive their monthly food rations; and (5) *Home Visits*, where WV health staff visit beneficiary households with a newborn infant, a severely malnourished child, or a child with growth faltering.[2]

The targeted child beneficiaries of the preventive MCHN model include *all* children between 6 and 23 months of age who reside in the preventive program areas, whereas the beneficiaries of the recuperative MCHN model include *malnourished*[3] children between 6 and 59 months of age who reside in the recuperative program areas.[4] Under both models (and thus in

[1] Unless otherwise specified, we refer to those who receive *both* food rations and health services as "program beneficiaries." This excludes the smaller category of individuals who receive (only) health services, principally at the rally posts, but do not qualify for, or receive, food rations. Thus program beneficiaries include pregnant or lactating mothers (of children under 6 months of age) or children incorporated under one of the two targeting models being evaluated.

[2] Loechl et al. (2005) and Menon et al. (2005) describe in detail the services delivered at the rally posts, mothers' clubs, and food distribution points.

[3] For targeting purposes, malnourished children are defined as M2 and M3 according to the Gomez classification, which was the classification scheme requested by the Ministry of Health. In this classification, normal (N) corresponds to ≥ 90 percent of the median of the weight-for-age CDC/NCHS/WHO standards; mild malnutrition (Grade M1) is ≥ 75 percent and < 90 percent; moderate malnutrition (Grade M2), > 60 percent and < 75 percent; and severe malnutrition (Grade M3), ≤ 60 percent (Cogill 2003).

[4] Severely malnourished children between 24 and 59 months of age in the preventive program areas are also eligible to participate. These children (classified as M3 according to the Gomez classification) are identified via the regular growth monitoring and promotion activities done at the rally posts.

both areas), pregnant women and lactating mothers with infants less than six months of age are targeted as well.

New beneficiaries are identified at the rally posts every month and referred to the appropriate program services, and eligible children are admitted into the program on a monthly basis. Pregnant and lactating women are recruited into the program at the rally posts every four months. For mothers of children 6–23 months old in the preventive model, and mothers of malnourished children under five in the recuperative model, monthly attendance at the rally posts and at mothers' clubs is mandatory to be eligible to receive the monthly food ration offered by the program. Pregnant and lactating women are also required to participate in mothers' clubs and pre- and postnatal consultations at health clinics (governmental or ADP-sponsored) or WV mobile clinics to be eligible for their monthly food ration. WV-Haiti-employed and trained health promoters and health promoter assistants are responsible for implementing the health and nutrition interventions in the field and food monitors are responsible for the distribution of the food rations at the food distribution points. The health staff also assists the food monitors during food distribution.

1.4 Organization of the report

The report is organized as follows: Section 2 outlines the cost-effectiveness methodology and defines the types of costs to be considered in the analysis. Section 3 calculates the program costs for the Central Plateau region and Section 4 assesses the proportion of those costs relevant for the pilot areas and for each intervention model, to put the costs on the same basis as the planned measures of effectiveness (to be analyzed in the final evaluation report). Section 5 describes the private and social costs of the program and Section 6 concludes.

2. METHODOLOGY

2.1 Cost-effectiveness

The cost-effectiveness of a program is calculated as the cost per unit of impact, typically referred to as the cost-effectiveness ratio (CER). The apparent (theoretical) simplicity, however, disappears when one begins to consider exactly what should be included in the numerator and the denominator, and how they should be measured.

The pilot study will evaluate the relative effectiveness of the programs using a set of internationally agreed upon measures of child undernutrition, including HAZ (see Section 1.1). These scores are statistically standardized against a reference population, and therefore it can be argued that they provide a "standardized" measure of effectiveness. At the same time, it is easy to imagine situations in which it may be preferable *not* to equate similarly sized differences or changes in the indicator—for example, if they occur at different points in the distribution. For some purposes and in some analyses, we may not treat an improvement in HAZ of 0.4 units for a population with an initial average of -1.0 as "twice" as large as an improvement of only 0.2 units for a similar population with the same starting point—that is, the nature and meaning of a shift in the population average from -1.0 to -0.8 may be different than a change from -0.8 to -0.6. Assessing (and considering alternatives to) the "standardization" of effectiveness will be an aspect of both the effectiveness and cost-effectiveness analyses in the final evaluation report.

Conceptually the numerator, costs, is more straightforward to assess than effectiveness, because most costs can be measured using a single, linear, metric: money. Even this is not entirely accurate, however, since, as we will show, a complete assessment of costs includes financial costs in different currencies and at different times, in-kind donations of goods, and unpaid (or possibly underpaid) time costs.

A further complication regarding costs is that, in practice, a full accounting of the costs typically requires the analyst to cast the net more widely than just an analysis of the program budget or accounting information alone. There are almost always a number of activities (and associated costs) that take place outside the formal accounting framework (Fiedler 2003), and consequently budget, of many programs, and WV-Haiti is no exception. Often, this is due to the organization and overlap of governmental ministries and other actors in the social policy arena. For example, in their review of the costs of three conditional cash transfer programs in Latin America, Caldés, Coady, and Maluccio (2006) find that none of the programs directly included the cost of health-care supplies provided by their respective governments in the program accounting systems.

After capturing and valuing as best possible the full range of costs feeding into the overall program, the final step in this analysis is to identify and isolate the costs that pertain *specifically* to the pilot areas and, within these areas, to identify the costs that pertain to each intervention model, since the numerator, effectiveness, is being measured at this level. Only when this is done will the measures of costs and effectiveness be on the same basis, allowing assessment of the relative CER.

2.2 Cost definitions

We begin by considering what to include as costs associated with the program.

2.2.1 *Program, private, and social costs*

Costs can be categorized as *program*, *private*, or *social* costs. Program costs can be categorized further as those financed directly out of the program budget (e.g., administrative salaries) and those financed by other agencies but forming an integral part of the program (e.g., donated food and medical supplies). We refer to the former as on-budget, or direct, program costs, and the latter as off-budget program costs. Private costs are those borne by program beneficiaries (e.g., travel costs) or other individuals associated with the program, including, for example, the health promoter assistants, who receive an incentive but whose work might be considered as "partly voluntary."[5] Social costs are those paid for by other actors in society (e.g., costs undertaken by the Ministry of Transportation for the maintenance of roads that see increased use in program areas). Often, only direct program costs are considered in cost estimates, and off-budget program, private, and social costs are ignored without justification. One reason for this is that only direct program costs tend to be included in the financial accounting records of government and nongovernment organizations, as is the case for WV-Haiti. Such an approach, however, may lead to an inaccurate representation of the full program costs.

2.2.2 *Financial, in-kind, or opportunity costs*

Each of the above costs can be incurred as financial or in-kind (often time) costs. *Financial* costs include items like salaries, user-charges, or travel costs; *in-kind* costs include donations such as food donated to the program by the Title II DAP or time services, for example, of program beneficiaries or "underpaid" personnel such as the health promoter assistants. Such time costs for program beneficiaries and program volunteers are often not included (or implicitly assumed to be zero) in cost analyses, in part because they can be difficult to measure. One methodology for valuing time costs, however, is to examine the *opportunity* cost of individuals' time, that is, the value of their time had they instead carried out their next, best, alternative activity.

2.2.3 *Fixed or variable costs*

Fixed costs are usually incurred at the start of the program before it begins frontline activities and thus may not vary as the number of program beneficiaries varies. These costs are often irretrievable (i.e., sunk) once incurred and may include aspects related to the initial design of the program. As the program evolves, we expect fixed costs as a fraction of total costs to decline. The size of *variable* (or recurring) costs, on the other hand, depends on the scale of the program. Finally, it is often helpful to distinguish between initial fixed costs that are set-up costs, which tend to be sunk costs, and capital costs (e.g., equipment), which, while they show up

[5] The health promoter assistants are provided with an incentive, which was initially 30 percent of a health promoter's salary but was raised to 50 percent, in FY 2004.

as accounting expenses made in only one year, are for services “used” over the life of the capital item, typically spanning several years.

By highlighting and considering these (overlapping) categories and characteristics for assessing costs associated with the program, we ensure a comprehensive analysis that guards against missing important resource allocations made in program operation. This does not mean, however, that we unearth and estimate every single cost item associated with the program, no matter the size. Instead, we focus on measuring all those costs that are likely to be substantial, as well as those that are likely to differ across the two interventions.

3. PROGRAM COSTS IN THE CENTRAL PLATEAU REGION

In this section, we calculate and describe on- and off-budget program costs for the entire Central Plateau region, and in Section 4, we turn to the pilot areas of the study. Section 5 examines private and social costs.

3.1 Direct program costs

Typically, the primary source of information for the direct program costs is the program's accounting system.[6] An accounting-based approach to measuring direct program costs is possible in this study because although WV-Haiti does not operate in a completely autonomous fashion, the majority of program-related activities is carried out under the DAP and is therefore under its accounting system.[7] For a given time period—in this case, the period from the start of the WV-Haiti DAP in October 2001 through September 2005—we first examine the program's detailed accounting records. For programs spanning a number of years, adjustments to account for inflation and the flow of services from capital investments can, and should, be made. Capital expenses represented only a small component (6 percent) of the expenditures made under the formal accounting system but they were highly concentrated in the early years, consistent with there being upfront investments for the program (e.g., vehicles). In fiscal year (FY[8]) 2002, they formed nearly 25 percent of the expenses, falling to 8 percent in FY 2003 and 0 in FY 2005. In what follows, we adjust both for inflation and for capital expenditure flows. Because of the low inflation (accounts are denominated in U.S. dollars and the study covers a period of relatively low inflation in the U.S.) and small fraction of capital expenses, the results do not differ greatly from those we obtain when we do not make these corrections. Had the accounts instead been maintained in gourdes, however, correcting for inflation would have been more important, given the high inflation rates in Haiti during the study period.

All direct program costs are captured by the WV-Haiti DAP accounting system. These accounts are separate from other WV-Haiti activities (a standard USAID requirement), in particular the privately funded ADPs, though in practice some activities and personnel classified in one or the other category (DAP or ADP) overlap slightly. Funds spent under the accounting records come primarily from "monetization," the process whereby Cooperating Sponsors sell in local markets a predetermined portion of the food they receive. In Haiti, the only commodity being monetized is wheat, which is neither locally grown nor distributed as part of the food

[6] In some cases analysts use budgets; when available, actual expenditures are preferred because the difference between planned and actual expenditures can be large.

[7] This approach is not always possible. For example, Fiedler (2003), in a cost analysis of a Honduran community-based integrated childcare program that did not have a centralized accounting system, constructs total program costs from the bottom up, estimating the costs required for each "ingredient" activity and then aggregating them. This is a valid approach, also recommended by Adam (2006), and was considered in the design of this study. It allows useful simulations of costs under varying program designs (e.g., excluding certain components) that may more closely approximate marginal costs. An important drawback to the bottom-up approach, however, is that it is difficult to capture *all* of the activities and associated costs borne in the central office of the program. Our view, supported by Waters (2000), is that it would have likely led to an underestimate of the full program costs.

[8] WV-Haiti DAP operates on an October to September fiscal year, coincident with the U.S. government.

rations. The wheat market in country is dominated by a single buyer, and prices are negotiated under approved guidelines. As of May 2004, WV-Haiti was the Lead Agency for carrying out monetization in Haiti. Other sources of funds include smaller amounts from the U.S. government via 202(e) funds (at times in compensation for monetization shortfalls) and the local USAID mission, and private funds from WV-U.S.[9]

WV-Haiti DAP accounting costs are organized by office division as follows: support; MCHN; internal monitoring and evaluation; commodities (or logistics); education; and agricultural production.[10] Within each of the divisions, there are a number of cost categories—the primary categories are shown in Appendix Table 1. The accounting system also includes many subcategories; they are not used here, largely because they did not correspond to program activities in a way that would have enhanced the present analysis. The "support" division includes activities and costs linked to finance and administration. The MCHN division is responsible for providing the health-care services and organizing health education (as described in Section 1.3). The role of the internal monitoring and evaluation division is given by its name, but in practice most of these activities are carried out within specific divisions (e.g., tracking and monitoring of beneficiaries in MCHN). The "commodities" division is the group charged with monetization and oversight and implementation of the food distribution—they are responsible for the food from when it arrives at the warehouse in Port-au-Prince until it is delivered into the hands of the beneficiary. The education division was intended as a food for education or school feeding program, but it was only partly implemented. Finally, the agricultural production division works with farmers in several domains (including adoption of improved varieties and technologies, market diversification, and conservation) via extension services. This division's work builds particularly on the ADPs.

We make a number of adjustments to the raw accounting information from the program. First, we exclude three once-off accounting entries (totaling $4.8 million) for in-kind gifts made by WV-U.S. Our reasoning for excluding them is that even if they represent food or medical supplies eventually given to beneficiaries in the pilot, since in the analysis below we directly value those benefits, including them here would constitute double counting. Second, we subtract the value of resources spent by the central office on the evaluation components of the pilot study (totaling $330,000), including the direct costs of the survey and operations research fieldwork, as well as an approximate value of the WV-Haiti staff time devoted to those activities.[11] By the same token, we do not include the (externally covered) costs for the IFPRI researcher posted at WV-Haiti. Unlike internal monitoring and evaluation, these external evaluation activities and their related expenses would not comprise part of an ongoing program, so we exclude them in the base measures of costs. Third, we adjust all figures by the U.S. inflation rate and report them as 2005 constant U.S. dollars. Fourth, we spread the costs of capital goods over a three-year

[9] The process of monetization involves fees calculated as 0.5 percent of the sale price plus 50 gourdes per metric ton, and typically comprise between 1.0-1.5 percent of sale price. These costs relevant to WV-Haiti are included in the DAP accounts we analyze.

[10] In addition, there is a separate division category in the accounting framework allocated to the Emergency Seeds Program, though there were no net expenses made under this category during the period examined in this report.

[11] We estimate these expenses in FY 2002 to 2005 to be (1) $100,000 for baseline survey; (2) $15,000 for each of two rounds of operations field research; (3) $100,000 for the follow-up survey; and (4) $100,000 in WV-Haiti staff time.

period.[12] Recognizing that expenditures on capital goods deliver flows of services that last beyond the year in which the expenditure is made, we apportion the related expenses to capital items by allocating one-third of the expense in the year the purchase was made, one-third in the following year, and the final third in the third year.

Table 1 presents the adjusted accounting data for WV-Haiti over the study period. Program costs have increased over time, consistent with program expansion (that we discuss below). Starting at $3.0 million in FY 2002 (the first, partial, year of operations), they grew to over $5 million in FY 2005.[13] Over the four years, the program has made nearly $18 million in direct expenses. The commodities division is by far the largest cost center, averaging over 40 percent of total costs. The support division is the next largest, averaging about one-quarter, but consistent with program expansion and maturation, its share declined over the period, from 35 percent in FY 2002 to 22 percent in FY 2005. The MCHN division is the third largest, and it has been increasing slightly as a percentage of total direct program costs, reaching 22 percent in FY 2005. The internal monitoring and evaluation division comprises a very small percentage of costs for reasons discussed above, and therefore does not reflect the emphasis WV-Haiti puts on those sorts of activities. The education division was always small and was phased out by FY 2004, whereas the agricultural production division grew over time, reaching 13 percent of direct program costs in the final year.

Table 1–Direct program costs for overall DAP, by WV-Haiti division ($000)

	FY 2002	FY 2003	FY 2004	FY 2005	Total
Support	1,037.2	1,154.9	1,326.5	1,189.6	4,708.2
	(35)	(26)	(25)	(22)	(26)
MCHN	543.6	688.7	1,057.8	1,143.8	3,433.9
	(18)	(16)	(20)	(22)	(19)
Internal monitoring and evaluation	0.2	90.6	0.5	0.5	91.8
	(0)	(2)	(0)	(0)	(1)
Commodities	1,105.1	2,027.7	2,282.9	2,232.2	7,647.9
	(37)	(46)	(43)	(43)	(43)
Education	17.9	23.0	0	0	40.9
	(1)	(1)	(0)	(0)	(0)
Agricultural production	255.7	393.8	653.5	681.1	1,984.1
	(9)	(9)	(12)	(13)	(11)
Total	2,959.7	4,378.7	5,321.2	5,247.2	17,906.8

Source: WV-Haiti accounting records and authors' calculations.

Notes: Figures in thousands of 2005 constant U.S. dollars. Figures exclude three large gifts in-kind from WV-U.S., which at market value were recorded in current dollars as $1.1 million for MCHN in FY 2003 and $2.2 million and $1.5 million for Commodities in FY 2003 and 2004. Figures also exclude current dollar external evaluation expenses of $100,000 in each of FY 2002 and 2003 ($50,000 each for MCHN and Commodities), and $130,000 in FY 2005 ($80,000 for MCHN and $50,000 for Commodities). Figures adjusted for capital expenditure flows, allocating one-third of the expense in the year the purchase was made, one-third in the following year, and the final third in the third year.

[12] We treat all expenditures made under the category "Equipment > $5,000" of the accounting system as capital expenditures (Appendix Table 1).

[13] DAP quarterly reports indicate a shortfall in monetization proceeds in FY 2005, which may account in part for the decline in expenditures from FY 2004 to FY 2005.

We now describe what underlies these aggregate country-level DAP costs, in order to estimate the direct program costs for the Central Plateau region. In FY 2002, DAP accounting records are available only for the central office in Port-au-Prince. During that year, operations were just beginning and, as a result, direct expenditures in the regions were relatively small. Starting in FY 2003, however, DAP accounting records are available for both the La Gonave and Central Plateau regions. Each regional office is responsible for its own accounts (using the same accounting categories and software), and those accounts are maintained in gourdes. Hard copies of monthly summary reports are then sent to the central office in Port-au-Prince where, after being converted into U.S. dollars using monthly average exchange rates, the information is reentered into the central office accounting system, along with all centrally made expenditures, all converted into dollars. At this data entry stage, however, the original source location of the expenditures is not retained (be it La Gonave, Central Plateau, or the central office), so that it is not possible, using only the central office accounting system, to separate expenditures made in the two regions by the regional offices from those made at the central office.[14]

We begin the calculation of direct MCHN program costs relevant to the Central Plateau region by including all expenses reported for the support, MCHN, internal monitoring and evaluation, and commodities divisions from the Central Plateau regional DAP accounting report. This is possible starting in January 2003. Including only the four above-mentioned divisions excludes only a small percent of the total costs reported by Central Plateau, those allocated to the education (0.3 percent over the study period) and agricultural production (8.6 percent) divisions, and excludes only slightly higher percentages of overall costs, as seen in Table 1.[15,16] What is reported by the La Gonave and Central Plateau regions, however, comprises only 13 percent of the total WV-Haiti operations for these four divisions. We therefore turn to the central office DAP next, to incorporate expenses accounted for in the central office that pertain to the Central Plateau region.

The first expense category we consider is salaries for staff working in the Central Plateau region. Contracting and hiring practices are such that many regional staff members are paid by the central, and not the regional, office. Using payroll information that indicates the division and region for each employee, we can measure the expenses made at the central office for employees based in Central Plateau. These are added to the regionally reported Central Plateau DAP account amounts described in the previous paragraph.

Of course, the central office in Port-au-Prince exists to support and run the program in the regions (there are no DAP activities in the capital). Thus most, or all, of its expenses also should

[14] Not categorizing expenses by region has its advantages in terms of the amount of work and simplifying the accounting system, as well as others of which we may not be aware. Indeed in many cases, it may not be clear where to assign expenditures, for example, when they are for items shared across regions. It would seem worthwhile, however, reconsidering the practice of not retaining the identifying information when these region-level data are entered, in order to facilitate more disaggregated analysis of accounting level information such as this one.

[15] While some of the agricultural programs do operate in the pilot areas, we exclude them because of their different focus and limited integration with the other components (Tango International 2004). This is similar to most evaluations where one does not assess the effects of every existing program in the area, even though some of them may have (indirect) effects on the outcomes under study.

[16] Because we exclude such a small percentage from the Central Plateau regional accounts, we do not adjust the amount charged to support, though certainly some of the activities charged under support are dedicated to the excluded departments.

be applied to the regions. Further, because prior to January 2003 there were no regional DAP reports; we only have the central office DAP accounts for calendar year 2002.

To allocate some of the central office costs to the regions, we first calculate what we refer to as the "residual" central office DAP expenses. In a sense, these are central office "overhead" costs, including administrative costs such as financial account costs, human resource management, and monetization activities. We underscore, however, that they include costs for many other activities carried out by central office staff that are not merely "administrative" costs but are directly related to field operations of the program. Examples include (1) the purchase of medical supplies not provided by the Ministry of Health; (2) the design of training and education materials for field staff; and (3) and supervision visits in the field. The residual expenses, therefore, include all expenses in the four divisions (excluding education and agricultural production) that we are unable to directly assign to one or the other of the regions. Equivalently, the residual expenses are the central office DAP accounts, less the regionally reported accounts (from both Central Plateau and La Gonave), less the salaries of regional personnel paid from the central office.

Discussions with program staff suggest that there are no major cost differences between operating in the two regions, although they do differ in some respects. For example, WV-Haiti has been working in La Gonave for nearly three decades, and distributing food there since 1994, so that certain infrastructure associated with program activities was in place when the current program began. There are also some differences in internal shipping costs between the regions, but as a percentage of the value of the food, shipping costs are relatively small (less than 5 percent), so this is not likely to bias our results substantially.[17] All these shipping costs are included in the accounting figures, under the commodities division.

There are two principal program activities under the MCHN program: the maternal and child health and nutrition activities and food distribution. Therefore, there are two sensible ways to allocate costs from the central office to each of the two regions, based on the relative sizes of these two activities in each region. As the two activities, as well as the information we have on them, are closely linked, it turns out to make little difference which one we use. In the monitoring information provided by the WV-Haiti commodities division, numbers of beneficiaries per month are tracked and then the amount of food distributed to them is estimated from beneficiary totals based on the prescribed quantity of food per beneficiary. As such, on one level it would seem most appropriate to use the number of beneficiaries to apportion costs. Because the commodities division commands a higher cost share of total WV-Haiti costs, and its costs are driven largely by food distribution, there is also a strong case for using the relative amounts of food distributed. In what follows, then, we take a hybrid approach. We allocate residual expenditures from the MCHN division of the central office DAP to the Central Plateau region based on the relative annual distribution of beneficiaries between the two regions. The distribution of beneficiaries is most closely linked to the MCHN division's primary activity, which is providing health services to beneficiaries. We apportion all other residual costs (for the commodities and other divisions) using the relative annual distribution of food (weight) between

[17] It does appear that the relative transport and security costs may have changed as the security situation worsened in the country, but even here it is not clear which is necessarily higher, given the difficulties of both water and land transport during instability in the country.

the two regions. For the commodities division, this is clearly the most relevant proportion; our implicit assumption for the other divisions is that they are more heavily involved in food distribution-related activities than in health activities, though we emphasize that the percentages are not that different and the results little changed if we instead allocate them by beneficiary proportions.

Table 2 shows the number of beneficiaries in the two regions over time, *where a child or pregnant or lactating woman is counted as a beneficiary in each month that they participate in the program*; we therefore refer to these as beneficiary-months. Thus, if a child remains in the program for nine months, as would happen for children with perfect attendance under the recuperative model, he or she counts as nine beneficiary-months in Table 2. In FY 2002, the program was only beginning to roll out, with health services and food distribution beginning for children and women in La Gonave in January but a few months later in Central Plateau. Consequently, both the number of child and pregnant and lactating women beneficiary-months more than doubled between FY 2002 and FY 2003, with most of the increase in the Central Plateau region, where more areas are included. Beneficiary-months continued to grow, though more modestly, into FY 2004 and 2005, remaining strong in Central Plateau but slowing down in

Table 2–Number of program beneficiary-months, by region

	FY 2002	FY 2003	FY 2004	FY 2005	Total
Children					
Central Plateau	29,375	73,765	86,632	110,371	300,143
(percent column total)	(53)	(62)	(60)	(63)	(61)
[percent growth previous year]	-	[151]	[17]	[27]	-
La Gonave	25,647	44,970	58,709	63,737	193,063
(percent column total)	(47)	(38)	(40)	(37)	(40)
[percent growth previous year]	-	[75]	[31]	[9]	-
Total	55,022	118,735	145,341	174,108	493,206
[percent growth previous year]	-	[116]	[22]	[20]	-
Pregnant or Lactating Women					
Central Plateau	18,813	57,051	73,642	84,675	234,181
(percent column total)	(55)	(76)	(76)	(79)	(75)
[percent growth previous year]	-	[203]	[29]	[15]	-
La Gonave	15,240	17,890	22,660	22,478	78,268
(percent column total)	(45)	(24)	(24)	(21)	(25)
[percent growth previous year]	-	[17]	[27]	[-1]	-
Total	34,053	74,941	96,302	107,153	312,449
[percent growth previous year]	-	[120]	[29]	[11]	-
Children + P/L Women					
Central Plateau	48,188	130,816	160,274	195,046	534,324
(percent column total)	**(54)**	**(68)**	**(66)**	**(69)**	(66)
[percent growth previous year]	-	[171]	[23]	[22]	-
La Gonave	40,887	62,860	81,369	86,215	271,331
(percent column total)	(46)	(32)	(34)	(31)	(34)
[percent growth previous year]	-	[75]	[31]	[9]	-
Total	89,075	193,676	241,643	281,261	805,655
[percent growth previous year]	-	[117]	[25]	[16]	-

Source: WV-Haiti commodities division and authors' calculations.
Notes: Each child or woman is counted as a beneficiary for every month he or she is in the program. Thus, the table represents beneficiary-months (and not number of children or number of pregnant and lactating women).

La Gonave in FY 2005. By FY 2005, the number of beneficiary-months in Central Plateau was 2.3 times that of La Gonave. As a subgroup, the number of pregnant and lactating women beneficiary-months in Central Plateau was more than three times as large. The number of beneficiaries, and therefore the program, expanded rapidly during the study period.

For comparison, Table 3 shows the total number of metric tons of all types of food distributed to beneficiaries in the two regions for each FY. As discussed above, since these data are derived from the number of beneficiaries served, the patterns are by construction similar, though they are not identical. Part of the difference stems from the differences in food rations for child beneficiaries versus pregnant and lactating women. The child's total ration (direct for the child and indirect for the family) weighs 22 kilograms, whereas the woman's weighs 17 kilograms (Appendix Table 2 shows the composition of direct and indirect food rations per beneficiary category). Another reason they would not be identical is that households cannot receive two indirect food rations, even if there are two direct beneficiaries (e.g., a child and his or her pregnant mother).

Table 3–Food distributed under MCHN, by region (metric tons)

	FY 2002	FY 2003	FY 2004	FY 2005	Total
Central Plateau (MCHN)	951	2,463	3,154	3,884	10,452
(percent column total)	**(58)**	**(66)**	**(66)**	**(69)**	(67)
[percent growth previous year]	-	[159]	[28]	[23]	-
La Gonave (MCHN)	694	1,257	1,590	1,705	5,246
(percent column total)	(42)	(34)	(34)	(31)	(33)
[percent growth previous year]	-	[81]	[26]	[7]	-
Total	1,645	3,720	4,744	5,589	15,698
[percent growth previous year]	-	[126]	[28]	[18]	-

Source: WV-Haiti commodities division and authors' calculations.

Unsurprisingly, food distribution under MCHN is about twice as large in Central Plateau as in La Gonave and this relationship has been stable over time. As seen with the beneficiary data, in FY 2002 the program was only beginning to roll out. Consequently, total distributions more than doubled between FY 2002 and FY 2003, with two-thirds of that growth within Central Plateau. Distributions continued to grow, though more modestly, in FY 2004 and FY 2005. Still, growth in distributions in Central Plateau remained above 20 percent into FY 2005 (but had slowed substantially in La Gonave). Monthly distributions were on the whole not significantly disrupted by political and civic unrest, in large part due to the prepositioning of food items in regional warehouses, though there was a dip in Central Plateau during the worst of the crisis, in January and February of 2004. International military and national police forces have been used to escort convoys to restock the regional warehouse in Central Plateau.

In FY 2002 and 2003, the proportions of food distributed in Central Plateau are less than the corresponding beneficiary distributions shown in Table 3, but in the final two years, they turn out to be equivalent. While there are differences between the percentages of beneficiaries in Central Plateau and in La Gonave, compared to the percentage of food distributed between the two regions, they are, as we predicted earlier, similar, so that using one or the other would alter the analysis only slightly. Our preferred method, however, is to use both the percentages of beneficiaries and of food distribution as detailed above.

In FY 2003 to 2005, there were also substantial quantities of food distributed (but not shown in Table 3) under a safety net program and, separately, an emergency food program carried out by WV-Haiti in collaboration with the World Food Programme and the Office of U.S. Foreign Disaster Assistance, respectively.[18] In FY 2003, 1,000 metric tons were distributed and in FY 2004 and 2005, 860 and 740 metric tons, respectively. These programs, while not directly related to the MCHN food distribution, did affect non-MCHN beneficiaries in the pilot areas. Fortunately, the direct costs of running these programs are not included in the DAP accounts (they had separate budgets) though it is, of course, possible some of these activities affected costs and performance of the normal MCHN activities. We view such possible additional costs associated with these actions as part of our general observation that program costs in this analysis relate to operating the WV-Haiti program under difficult political and macroeconomic circumstances, and are thus likely to be higher than they might have been otherwise, and make no attempt to separate them out.

Using the percentages for beneficiaries from Table 2 (indicated in bold), then, we assign 54, 68, 66, and 69 percent of the residual central office accounting costs for the MCHN division to Central Plateau in FY 2002, 2003, 2004, and 2005, respectively. In similar fashion we use the percentages of food distributed by weight to the Central Plateau to allocate the residual central office accounting costs for the commodities, support, and internal evaluation and monitoring divisions. These latter percentages are shown in bold in Table 3 and are 58, 66, 66, and 69 percent for each fiscal year. The estimates of direct program costs in Central Plateau are presented in Table 4. To reiterate, direct program costs in the Central Plateau include (1) expenses reported from the Central Plateau regional DAP accounting reports; (2) salaries for staff working in the Central Plateau paid from the central office; and (3) a portion of residual expenditures from the central office assigned to the Central Plateau, based on the beneficiary proportions in Table 2 and food distribution portions in Table 3.

Table 4–Direct program costs in Central Plateau, by WV-Haiti division ($000)

	FY 2002	FY 2003	FY 2004	FY 2005	Total
Support	599.6	773.3	888.6	815.7	3,077.3
	(40)	(31)	(29)	(28)	(31)
MCHN	307.9	437.3	800.8	738.6	2,284.7
	(20)	(18)	(26)	(26)	(23)
Internal monitoring and evaluation	0.1	60.0	2.1	0.4	62.5
	(0)	(2)	(0)	(0)	(1)
Commodity	601.7	1,216.3	1,350.4	1,302.5	4,470.8
	(40)	(49)	(45)	(46)	(45)
Total	1,509.3	2,486.9	3,041.9	2,857.1	9,895.3

Source: WV-Haiti accounting records and authors' calculations.
Notes: Figures in 2005 constant U.S. dollars.

Annual direct program costs in Central Plateau grew over 100 percent from $1.5 million in FY 2002 to $3.0 million in FY 2004, before declining slightly into FY 2005. The initial growth rate was much at a slower rate than the growth in beneficiaries served or in food distribution, possibly reflecting economies of scale as the operation got underway. The

[18] The current dollar total budgets for these programs (excluding the value of food) over this period were approximately $800,000 for the safety net program and $500,000 for the emergency food program.

dominant cost category remains the commodities division, which comprises a relatively stable 40–49 percent of total expenses. All operations were affected by increasing oil prices in the latter years, but it is likely that commodities would have been affected most, given its distribution role. This is reflected in the proportion of its costs going to the "travel" category, which increased from 12 to 18 percent over the period; while this accounting category reflects more than just fuel, it is an important component. Support services is the next largest category, on average, 31 percent, though these costs declined as a percentage of the total, particularly in the second year of operations. The share allocated to MCHN grew over time, reflecting the growing numbers of beneficiaries in the program.

3.2 Off-budget program costs

Next, we consider the off-budget costs for WV-Haiti in the Central Plateau. There are two principal items in this group: food donations made by USAID and health-care supplies provided by the Ministry of Health in Haiti.

3.2.1 *Food donations*

As part of its reporting requirements to USAID, WV has an elaborate computerized tracking system designed for the DAP food items (known as the commodity tracking system or CTS), which is a system used by WV worldwide. This system tracks food items from the moment they enter the country until they are distributed to the beneficiaries, documenting the movements, amounts distributed, and any losses.

In contrast to other Cooperating Sponsors (Save the Children, CARE, and Catholic Relief Services), WV does not distribute food at the same time that they deliver health and nutrition services. Instead, food distributions are scheduled on different days, and in different locations, than the health and nutrition activities (rally posts, etc.). On the morning of a distribution day, the food is transported by truck from regional warehouses to specific distribution sites, where program beneficiaries from different areas gather to receive their food rations. At the end of the day, any food not distributed is transported back to the warehouse. All these movements are recorded in the CTS for each type of food. We are unable to explore whether this system is more or less cost efficient than that of the other Cooperating Sponsors, but it seems that private costs are likely to be higher under the WV model, since beneficiaries need to attend both the rally post and the food distribution point, given the separation of these activities. We explore these private costs further in Section 5.

WV-U.S. is responsible for paying for shipping food to Haiti, but upon arrival at the port, all subsequent expenses for shipping and warehousing are covered by WV-Haiti and are included in the DAP accounting system and reflected under the commodities division activities.

The food-related costs not reflected in the accounting system, then, include shipment to Haiti and the value of the food items. Using shipping records provided by WV-Haiti, we calculate the mean value per kilogram, including external shipping costs, for each food item for

each fiscal year.[19] This does not necessarily equal the market price of these items in Haiti (or in the United States) if one were to purchase them on the private market there. We choose to value at this international price as it is the most relevant in terms of the resources being devoted to the program from a global perspective, even though it is possible that the local value of the items is more or less than the international value. We then use these calculated prices to assess the aggregate value of food items delivered under MCHN in the Central Plateau.[20] This includes direct rations delivered to child beneficiaries and indirect rations delivered to their families, as well as direct rations delivered to pregnant and lactating mothers and indirect rations to their families. These figures are presented in Table 5. [21]

Table 5–Value of food distributed in Central Plateau, by food type ($000)

	FY 2002	FY 2003	FY 2004	FY 2005	Total
Soy fortified bulgur	177.3	506.1	586.0	720.1	1,989.5
(percent)	(35)	(32)	(33)	(32)	(33)
Lentil	70.1	405.2	331.2	357.5	1,164.0
(percent)	(14)	(25)	(19)	(16)	(19)
Vegetable oil	119.1	363.4	435.2	505.9	1,423.5
(percent)	(24)	(23)	(24)	(23)	(23)
Wheat soy blend	139.1	316.3	437.5	633.1	1,526.0
(percent)	(27)	(20)	(24)	(29)	(25)
Total	505.6	1,590.9	1,789.9	2,216.6	6,103.0

Source: WV-Haiti commodities division and authors' calculations.
Notes: Figures in 2005 constant U.S. dollars.

Reflecting the general patterns seen in Table 3, as well as varying prices, the value of food distributed to the Central Plateau tripled between the first and second year of the program, and continued to grow steadily into FY 2005, at which point WV-Haiti was distributing $2.2 million annually in food. One-third of the value was in soy-fortified bulgur, one-quarter each in vegetable oil and wheat soy blend, and one-sixth in lentils, except in 2003, when lentils represented one-quarter. Given that the rations are predefined quantities (though deviations can occur, for example, when there are shortages), it is unsurprising that the percentages do not vary greatly, as relative prices have been steady over the period. The exception is for lentils in FY 2003 as the price per kilogram nearly doubled that year due to substantial losses during shipment to Haiti (leading to their greater fraction of the total value in FY 2003). The value of food distributed is nearly two-thirds of the nonfood total direct program costs in the region (Table 4). It is clear that ignoring the value of food would severely underestimate the full program costs.

[19] These are known as cost, insurance, and freight (CIF) prices as opposed to free on board (FOB) prices, which include only the cost of the items being shipped.

[20] The figures exclude the small amount of food distributed under the education program (about 200 metric tons) as well as all the food distributed under the agricultural production, safety net, and emergency programs, described in Section 3.1.

[21] Table 5 excludes internal losses, but these represent less than 1 percent of the total value of food.

3.2.2 *Health supplies*

The next important component, another off-budget program cost, is the provision of vaccines (for both children and women), vitamin A capsules, iron folate supplements, oral rehydration salts, and deworming pills. The costs for delivery of the services are, of course, included in the operational costs of the program; it is only the supplies themselves that we are concerned with here. At times, the program also delivers other items, depending on supplies, such as small preparatory kits for pregnant women.[22] As these other items are somewhat irregular (and there is little information on them), we do not include their value here but are confident they comprise only a small amount of the health-care supply costs, which, in turn, do not form a large fraction of program costs.

Using MCHN division monthly reports that list all services (listed above) provided at rally posts to program beneficiaries (both children and pregnant and lactating women) as well as to others who attend but are not eligible for the food rations, we are able to calculate the total number of persons receiving key services in each FY in the Central Plateau. We then combine that information with estimates of the costs of each of the components (e.g., the unit cost of each vaccine) to compute the costs of the in-kind health-care supplies.[23] These are shown in Table 6. The most important component (representing over half the costs) was the iron folate tablets provided to pregnant women. The upshot of these results is that this in-kind component of the program forms only a very small part of total program costs. Given the relatively small magnitude of the costs, it is clear that adjusting for possible losses in the field or for variation in prices would change this picture little, so we do not do so. The same is true for the possibility that there are biases due to the approach we must follow to calculate costs here, using existing prices in 2004 but not all of the historical prices as we were able to do with food.

Table 6–Value of health supplies distributed in Central Plateau, by fiscal year ($000)

	FY 2002	FY 2003	FY 2004	FY 2005	Total
Total	24.4	55.5	35.2	17.8	132.9

Source: WV-Haiti MCHN division and authors' calculations.
Notes: Figures in 2005 constant U.S. dollars.

[22] The program also at times sells items, such as Clorox for water purification. These activities are also small in comparison to the other program costs, and unlikely to differ across intervention models.

[23] The price data we use were collected from the UNICEF office in Haiti and pertain to 2004.

4. PROGRAM COSTS IN THE PILOT AREAS

To estimate direct program costs only for the pilot areas, we do the following. First, in the previous section, we estimated the direct program costs made in Central Plateau (as they were not directly available from the accounting information), combining information from the regional DAP accounts, the central office DAP accounts, information on where personnel paid from the central office work (as the central office pays some regional staff), and the proportion of beneficiaries and of total food distributed to Central Plateau. The pilot program, however, is operating only in selected parts of three of the six Communes in Central Plateau. After estimating the program costs for Central Plateau as a whole in the previous section, in this section we estimate the fraction of costs associated with the pilot areas. This is done in similar fashion as the previous allocation of costs from WV-Haiti to the Central Plateau. We estimate the fraction of all beneficiaries in Central Plateau who are in the pilot areas and extrapolate this fraction to the costs. In the final step, we separate resources spent on the preventive and recuperative models, again using information on the number of program beneficiaries for each model. This procedure is described in more detail below.

The original research proposal for the evaluation contemplated a number of design differences between the preventive and recuperative models (IFPRI 2001). For example, a potential saving identified under the preventive model was that it would be unnecessary to weigh and measure children for screening purposes, since targeting is based on age as opposed to nutritional status (which requires weighing the child). During final program design, however, this component was retained by WV-Haiti under the health services offered in both the preventive and the recuperative models, as it appeared to be something that mothers valued; moreover, the information was requested by the Ministry of Health as part of the monthly reports.

Therefore, the driving force behind any differences in costs between the two models is the number of program beneficiaries. In the preventive model, children remain in the program longer, on average, though they and their families receive the same food ration per month as in the recuperative model. A child entering at 6 months of age is eligible to remain in the program for 18 months. Linked to this, mothers under the preventive model attend the mothers' clubs for a longer period of time and children are required to attend the rally posts for a longer period. Pregnant and lactating women are treated the same under both models. A sensible way to distribute the costs associated with each model, then, is to base them on the relative distribution of program beneficiaries, as the size of the food rations (per month) do not vary across interventions. This also appropriately apportions costs linked to most of the other services of the programs, such as carrying out the mothers' clubs, which are the linked conditions for program eligibility. As part of the pilot program, WV-Haiti is tracking program beneficiaries and distributions made in the pilot areas.[24] As evidenced earlier, it makes little difference if we

[24] For the entire period, monthly information on the number of child beneficiaries showing malnutrition of M2 or M3, and the number of beneficiaries between 6-23 months of age is available. Because there will be some malnourished children living in preventive areas, we reclassify 5 percent of the children from recuperative to preventive areas, based on observed prevalence of malnutrition reported by WV-Haiti staff.

apportion the costs based on the fraction of food distributed or on the number of beneficiaries, since there is a very close link between the two.

First, we use the fraction of program beneficiaries in the pilot areas of all program beneficiaries in Central Plateau to assign costs to the pilot areas. Then, we use the relative fraction of beneficiaries between the interventions to allocate the total amount assigned to the pilot areas between the interventions. We emphasize that this top-down approach, which includes a number of reasonable, but nonetheless ad hoc, assumptions, is imperfect. Nevertheless, as we will show, it captures the broad patterns of growth and development of the pilot program over time quite well. Further, it distinguishes between the two models based on the principal factor driving differences in their costs: the number of program beneficiaries receiving food and other services. Thus, while it is certainly not free of measurement error, it is a valid and reasonably accurate approach to assessing costs without substantially increasing the complexity (and consequently the costs) of the present study for what are likely to be limited gains in accuracy.

Table 7 presents the child and pregnant and lactating women beneficiary-months for all of Central Plateau (repeated from Table 2) and for the pilot areas. The pilot areas account for an expanding fraction of the program child beneficiary-months and, to a lesser extent, pregnant and lactating women beneficiary-months,[25] in Central Plateau, reaching nearly one-fifth by FY 2005. This is consistent with the fact that 12 food distribution points serve the pilot areas, nearly one-fifth of the 68 food distribution points that serve the Central Plateau region as a whole.

The steady increase in the share of beneficiaries in the pilot area even after FY 2004 is due to increases in both preventive and recuperative areas, but the increases in preventive areas have been much larger, such that in FY 2005 about two-thirds of the child beneficiary-months in the pilot areas were in preventive areas. This agrees very closely with information from the 2005 census carried out in the pilot areas, which shows 70 percent of the current child beneficiaries are in preventive areas, as well as with the 2005 follow-up survey, which shows 73 percent. The census also confirms that the emerging difference in child beneficiaries served is not due to differences in sizes of the populations of the areas, which are approximately equal. Instead, it is due to two aspects of the preventive model: (1) that there are more 6-24 month old children than there are malnourished children targeted under the recuperative model; and (2) children under the preventive model remain in the program longer. (These themes will be elaborated upon further in the final evaluation report.) The census also confirms that the percentages of pregnant and lactating women in each of the areas are similar, and pregnant and lactating women beneficiaries are split evenly between the interventions.

[25] The number of pregnant and lactating women beneficiary-months is known for the total pilot areas in FY 2005 (when it was relatively stable across months), but estimated prior to that, using the trend growth rate in Central Plateau. We allocate 50 percent of the women to each of the two models, based on the fact that the number of pregnant and lactating women receiving the program was approximately equal across preventive and recuperative areas. While this is approximate, it is important to adjust for these women beneficiaries, since, by virtue of their being equally distributed across interventions, they correctly decrease the fraction of beneficiaries we attribute to prevention areas.

Table 7–Number of program beneficiary-months in Central Plateau and pilot areas

	FY 2002	FY 2003	FY 2004	FY 2005	Total
Children					
Central Plateau	29,375	73,765	86,632	110,371	300,143
Pilot program: **Preventive**	508	6,227	11,195	14,000	31,930
(percent of Central Plateau)	(1.7)	(8.4)	(12.9)	(12.7)	(10.1)
(percent of pilot)	(52.9)	(56.2)	(69.4)	(66.2)	(64.7)
Pilot program: **Recuperative**	453	4,861	4,941	7,147	17,402
(percent of Central Plateau)	(1.5)	(6.6)	(5.7)	(6.5)	(5.8)
(percent of pilot)	(47.1)	(43.8)	(30.6)	(33.8)	(35.3)
Pilot program: Total	961	11,088	16,136	21,147	49,332
(percent of Central Plateau)	(3.3)	(15.0)	(18.6)	(19.2)	(16.4)
Children and P/L Women					
Central Plateau	48,188	130,816	160,274	195,046	534,324
Pilot program: **Preventive**	1008	8,727	17,497	21,245	48,476
(percent of Central Plateau)	**(2.1)**	**(6.7)**	**(10.9)**	**(10.9)**	(9.1)
(percent of pilot)	(51.4)	(54.2)	(60.9)	(59.6)	(58.8)
Pilot program: **Recuperative**	953	7,362	11,242	14,393	33,949
(percent of Central Plateau)	**(2.0)**	**(5.6)**	**(7.0)**	**(7.4)**	(6.4)
(percent of pilot)	(48.6)	(45.8)	(39.1)	(40.4)	(41.2)
Pilot program: Total	1,961	16,088	28,739	35,638	82,426
(percent of Central Plateau)	**(4.1)**	**(12.3)**	**(17.9)**	**(18.3)**	(15.4)

Source: WV-Haiti commodities division and authors' calculations.

Notes: Each child or woman is counted as a beneficiary for every month he or she is in the program. Thus, the table represents beneficiary-months (and not number of children or number of pregnant and lactating women). The number of pregnant and lactating women beneficiary-months in the pilot areas is estimated as described in the text.

Using the percentages shown in bold from Table 7 and the levels presented in Tables 4, 5, and 6, we are now in a position to estimate the direct program and off-budget program costs of each for the pilot interventions. These are shown in Table 8.

From the start of the project through September 2005, the total program costs for the pilot interventions were $2.4 million for nearly four years of operation. In the first full year of operations (FY 2003), the costs across interventions were roughly similar, but by FY 2004 the ratio of costs was in line with the beneficiary numbers: costs in preventive areas in FY 2004 were nearly double those in recuperative areas and in FY 2005 they were 1.5 times as large. Direct program costs form the largest share of the costs, starting at 75 percent of costs in FY 2002 but declining in importance to just over 50 percent in FY 2005 as food distribution expanded. Throughout, the cost of health supplies remains a minor component compared to the other costs.

At this stage, we are in a position to make some crude calculations of costs per beneficiary per month. Our methodology for computing costs, supported by the identical services offered to beneficiaries under both models (only the targeting differs), means that cost per beneficiary-month does not differ across the interventions. The key cost difference across interventions lies in the *number* of beneficiaries, not the cost per beneficiary. A complication in

Table 8–Direct program and off-budget costs in the pilot areas ($000)

	FY 2002	FY 2003	FY 2004	FY 2005	Total
Preventive					
Direct program costs	31.6	165.9	332.1	311.2	840.8
Food costs	10.6	106.1	195.4	241.4	553.5
Health supply costs	0.5	3.7	3.8	1.9	10.0
Total	42.7	275.7	531.3	554.6	1,404.3
Recuperative					
Direct program costs	29.8	140.0	213.4	210.8	594.0
Food costs	10.0	89.5	125.5	163.6	388.6
Health supply costs	0.5	3.1	2.5	1.3	7.4
Total	40.3	232.6	341.4	375.7	990.0
Total Pilot					
Direct program costs	61.4	305.9	545.4	522.0	1,434.8
Food costs	20.6	195.7	320.9	405.0	942.2
Health supply costs	1.0	6.8	6.3	3.3	17.4
Total	83.0	508.4	872.7	930.3	2,394.3

Source: WV-Haiti Commodities group and authors' calculations.
Notes: Figures in 2005 constant U.S. dollars.

doing assessing cost per beneficiary-month is that while similar, the component parts (and therefore associated costs) of services and goods for child beneficiaries is different from that of pregnant and lactating women beneficiaries. Treating the two as equal, however, we can estimate costs per beneficiary-month by dividing the figures in Table 8 by their corresponding beneficiary-month levels in Table 7.[26] These results are shown in Table 9 where we combine food and healthcare supply costs.

Table 9–Direct program and off-budget costs per beneficiary-month in the pilot areas ($)

	FY 2002	FY 2003	FY 2004	FY 2005	Average
Direct program costs	31	19	19	15	17
Off-budget program costs	11	13	12	11	12
Total costs	42	32	31	26	29

Source: WV-Haiti Commodities group and authors' calculations.
Notes: Figures in 2005 constant U.S. dollars.

Consistent with the program increasing efficiency and benefiting from economies of scale, direct program costs per beneficiary-month decline sharply after the first year, and again in FY 2005. This occurs as the "fixed" overhead and central office-type expenses are spread over larger numbers of beneficiaries, making average costs lower. Off-budget program costs, on the other hand, do not decline over time. This is also what we expect since the services are unchanging and these components, of all the costs, most closely resemble variable costs. In FY 2005, when the program has had time to both grow and mature, average direct program costs are $15 per beneficiary-month, off-budget program costs are $11, and full program costs are $26. If the decline from FY 2004 to FY2005, however, reflects budgetary cutbacks as described earlier,

[26] Of course, this could have been done at an earlier stage if it had not been important to assess the total costs in the pilot areas.

it is possible that WV-Haiti staff are filling in the gaps, e.g., with extra hours, in ways that might not be sustainable. Lastly, considering only direct costs would understate the full program costs by 40 percent.

These estimates provide the primary ingredients for the cost-effectiveness analysis to be carried out in the final evaluation report, where they will be further refined.

5. PRIVATE AND SOCIAL COSTS

As discussed at the outset, while our information is most complete for direct *program* costs and for food and health supply off-budget program costs, there are other current costs (and possibly savings) that result directly from the introduction of the program. Indeed, for some programs, failing to pay attention to them may severely under- or overstate the full program costs.

5.1 Private costs

Most of the private costs that stem from the program are time costs incurred by beneficiaries to complete program requirements. We assume that the value of increased time costs for children is not significant, which is uncontroversial for under five-year-olds. The time dedicated to the program by adults, particularly the caregivers, is a different matter. Program beneficiaries may incur new costs as a result of the program in several ways. The mothers of child beneficiaries must, as a condition to receive the food transfers, now attend the mothers' clubs, bring their children to the rally posts (though another caregiver can take the child to the rally post), and travel to the food distribution points (though any member of the family can carry out this last requirement). Similarly, women beneficiaries (pregnant and lactating women) must attend pre- and postnatal consultations (instead of rally posts), as well as mothers' clubs and food distribution points. If they do not, they cannot participate in the program—hence these are necessary and possibly additional, private costs that they undertake in order to remain program beneficiaries. Other possible additional costs, such as more time spent caring for children, might be related to the program but not strictly necessary for participation, so we do not incorporate them.

About 85 percent of caregivers in the 2002 baseline sample survey reported being involved in income-generating activities in the past year (Menon and Ruel 2003). For these women, it is obvious why we should value their time—they may have had to give up remunerative activities in order to attend the program activity. This can occur despite laudable efforts by WV-Haiti to plan events to avoid overlap with important income-earning activities, such as local market days. Even for those women who did not lose earnings or did not report working, however, we must still value their time spent in complying with program requirements.

To value women's time, we begin with the 2001 Haitian Living Standards Measurement Survey (LSMS) and calculate daily earnings for rural women who live and work in Central Plateau.[27] In 2001, the median daily wage for women working in rural areas of the Central Plateau was 44 gourdes, which, at 2001 exchange rates, was a little under $2 a day. As the subset of women who work is not random, we recognize that this valuation likely overstates what many women could and do earn. This is also likely since from the LSMS, we consider only those women working in wage labor. Most women in the program areas are not working in the formal sector and typically informal sector jobs are less remunerative. Finally, to the extent that

[27] Given the already complex nature of the household surveys for this study, we chose not to add questions about earnings to them knowing we could rely instead on the Haitian LSMS.

women can rearrange and substitute their activities across time, it would be possible for many of them not to lose income as a result of having to fulfill the program requirements.

With an approximate value of time in hand, we turn now to an assessment of the amount of time, per month, that pregnant and lactating women or mothers must invest to fulfill the program requirements. Ideally, what are of interest are the *incremental* costs to the caregiver—that is, the additional time resulting from the program at the various points of contact. For example, if a rally post were located in a nearby town and the caregiver made monthly trips to this town before the program, it is possible that even in the absence of the program, she would have made trips to that location; for her, the incremental cost would include only the time spent at the rally post. For another beneficiary who would not have made such a trip, however, the incremental cost also includes the cost of the trip. This includes any financial costs (e.g., bus fare), though given the convenient location of the services and lack of public transport, we expect very little of these, as was found in the operations research (Loechl et al. 2005), and treat them as zero. Time spent by women or mothers in the mothers' clubs and at pre- and postnatal consultations can be analyzed in similar fashion. Food distribution centers, however, are somewhat different, since it is not required that the woman or mother attends in person, and she can send a household representative. Nevertheless, in practice, the majority of those receiving distributions are the women or mothers themselves.

Based on the operations research, Loechl et al. (2005) provide detailed information on time spent by mothers of child beneficiaries to fulfill program requirements at the three critical contact points (mothers' clubs, rally posts, food distribution points). We combine that information with information available in the 2005 follow-up survey and estimate that, on average, total time commitments are approximately 12 hours per month per beneficiary.[28] Because we do not control for whether or not these are incremental costs, this is probably an upper bound on the actual costs incurred by women. A comparison of whether there were substantial differences between preventive and recuperative areas indicated there were none, other than that average travel time was about 20 minutes greater in recuperative areas. Mothers who in addition to having a child in the program are themselves beneficiaries (pregnant or lactating with a child < 6 months old) have to fulfill both sets of program requirements. They have to attend an additional mothers' club and a pre- or postnatal consultation once per month, but only need attend the food distribution point once. The 2005 follow-up survey indicates that this is uncommon, occurring in less than 2 percent of cases.

Valuing these 12 hours as one-and-a-half-day's wages, then, we approximate an upper bound to additional private costs of the intervention at $3 per beneficiary per month. We consider this an upper bound for the costs for the reasons indicated above. For the pilot area as a

[28] The calculations from the operations research were (1) Food distribution points: average time to and from was 58 × 2 minutes and average time there was 241 minutes; (2) Rally post: average time to and from was 20 × 2 minutes and average time there was 117 minutes; (3) Mothers' clubs: average time to and from was 18 × 2 minutes and average time there was 40 minutes (waiting) and 66 minutes (in session) (Loechl et al. 2005). We did not assess the time spent by pregnant and lactating women at the pre- and postnatal consultations, but we assume that the time commitments are similar to those for Rally post attendance (average travel time and time spent at the venue). In the 2005 follow-up survey, we replicated the travel time questions to get responses for a more representative population and found average travel time to (1) Food distribution points: 84 × 2 minutes; (2) Rally posts: 29 × 2 minutes; and (3) Mothers' clubs: 39 × 2 minutes. Combining the operations research times for nontravel components reported in Loechl et al. (2005) with the travel times from the household survey yields 768 minutes, which we round off to approximately 12 hours.

whole, then, this translates into approximately $250,000 over the course of the four years (three times the number of beneficiaries taken from Table 7), or 10 percent of the total costs reported in Table 8. From the point of view of the cost per beneficiary-month in the final year, it is $3 added to the full program costs of $26. So, while our estimate of the value of women's time turns out not to be a major cost component relative to the program as a whole, at just over 10 percent of the per beneficiary costs, it is nontrivial.

WV-Haiti employs hundreds of staff and two of the key roles played in the MCHN are those of the health promoters and health promoter assistants. Interviews with these staff in the pilot areas were carried out as part of the 2005 follow-up survey work. Among other things, all staff members were asked about time commitments. While these data will be described in more detail in the final evaluation report, we comment here on a few aspects important to the cost analysis. Both health promoters and health promoter assistants were asked about the usual time they spend preparing for each of their program-related activities,[29] travel time, time to carry out the activity, and the number of times they do each activity in a month. From this information we calculate the usual time expenditures of each worker. Health promoters in preventive areas report working, on average, about 29 hours more each month, just over 24 8-hour days (compared to about 21 8-hour working days of health promoters in the recuperative areas). They spend relatively more time on mothers' clubs than their counterparts in recuperative areas, consistent with the higher beneficiary load in preventive areas; mothers' clubs are one of the activities that necessarily increases with the number of beneficiaries. Thus some hidden additional costs in the preventive area are these additional hours or effort put in by the health promoters working there. We estimate the additional per person costs to be about $4 a month, assuming 22 days at 8-hours a day as complete work month. Overall, these costs turn out to be minimal, since there are only 10 health promoters working in the preventive areas.

Comparing the average time commitment of health promoters versus health promoter assistants, while the latter do work about five days a month less, they are still working 17.5 8-hour days. Thus health promoter assistants work about 25 percent less than their counterpart health promoters. Given that they are currently paid 50 percent of a health promoter salary, it is appropriate to recognize at least part of their time as voluntary contributions to the program, which we should treat as private costs. We estimate the per person costs to be about $13 a month, but overall, these costs also turn out to be minimal, since there are only 23 health promoter assistants working in the pilot areas.

5.2 Social costs

Undoubtedly there are additional costs incurred or saved by other actors in the economy (or the economy as a whole) as a result of the program—these are what we refer to as social costs. Costs include, among other things, the following: (1) Some program expenditures include taxes (e.g., income and other taxes) that are not true social or resource costs, but constitute a transfer of resources from the WV-Haiti budget to general government revenues. In a full (general equilibrium) accounting, these would need to be offset by treating them as benefits in the "government account." (2) Any supply-side costs or savings incurred by the Ministry of

[29] Program activities included are food distributions, mothers' clubs, rally posts, home visits, pre- and postnatal consultations, and other activities.

Health. We expect the latter type of costs to be small, in particular because, if anything, WV-Haiti is underwriting costs of health-care provision that might normally fall under the purview of the Ministry of Health. Nevertheless, there is little reason to think that these sorts of social savings and costs would differ across interventions in any fashion other than varying with the number of program beneficiaries, a characteristic we already control for in the analysis. In our judgment, then, ignoring the various possible social costs will not bias conclusions about relative costs feeding into the cost-effectiveness analysis.

6. CONCLUSIONS

The analysis presented here outlines the methodology and calculates costs for the WV-Haiti pilot program. These costs will serve as key ingredients in the relative cost-effectiveness analysis to be carried out in the final evaluation report. The data show that the program grew substantially over its first four years, more than doubling its size in the first year. They also indicate that it is very important to consider off-budget program costs. Ignoring the value of the donated food distributed would underestimate the program costs by more than one-third in the early years and almost one-half in FY 2005. The value of medical supplies and private costs, however, appear to be less important in the overall costs.

The pilot areas represent only a small part of the overall DAP intervention area, and therefore comprise only a small part of the overall costs. We estimate total costs for the pilot areas, excluding external evaluation costs, to be approximately $2.4 million, to September 2005. Overall, nearly 60 percent of this was for the preventive model and the remaining 40 percent for the recuperative model. These figures, however, mask the fact that in FY 2004 and FY 2005, costs in the preventive area are nearly twice those in the recuperative area, reflecting the unequal numbers of program beneficiaries between the two modalities. This is due to two factors: (1) there are more children under two years of age (targeted in the preventive model) than malnourished children under five (targeted in the recuperative model); and (2) beneficiaries in the recuperative model (i.e., malnourished children) receive program benefits for a maximum of 9 months, whereas in the preventive model, children can receive benefits for up to 18 months (i.e., from 6 months of age until they reach 24 months of age). We will explore these patterns more thoroughly in the final evaluation report. We also estimate a crude measure of the cost per beneficiary per month—$26 ($15 direct program costs and $11 off-budget program costs) in FY 2005. Using that figure, we find that private costs on the part of program beneficiaries amount to up to an additional 10 percent.

The primary hypothesis being tested in the overall project is that the preventive and recuperative models differ in their relative effectiveness in reducing malnutrition. A concern for assessing the relevance of any such differences is that the two models also differ in terms of their costs. We have shown that such a concern is justified; the preventive model is far more costly than the recuperative model. How important this difference is awaits the final impact assessment of the two programs. Lastly, we emphasize that Haiti has undergone a difficult period since the pilot study began. As with other parts of the evaluation, the generalizability of the results presented here, as well as those to come, will need to be carefully assessed.

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APPENDIX TABLES

Appendix Table 1–WV-Haiti DAP aggregated accounting categories

Accounting Code	Accounting Category
8000	Salaries and benefits
8020	Staff training
8100	Office supplies
8150	Ministry Supplies
8200	Travel
8300	Interoffice
8400	Occupancy
8500	Other direct charges
8600	Hospitality
8650	Advertising
8700	Fees and taxes
8750	Consultancy
8880	Equipment < $5,000
8809	Equipment > $5,000

Source: WV-Haiti accounting records.

Appendix Table 2–Composition of direct and indirect food rations, by beneficiary category

Type of commodity	Children 6-23 months of age (preventive model) Undernourished children 6-59 months of age (recuperative model)		Pregnant and lactating women (both models)	
	Direct child ration (kg)	Indirect child ration (kg)	Direct women ration (kg)	Indirect women ration (kg)
WSB[a]	8			
SFB[b]		10	5	5
Lentils		2.5	2	2
Vegetable oil	2		1.5	1.5

[a] Wheat-soy blend.
[b] Soy-fortified bulgur.