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Enhancing Nutrition: A New Tool for *Ex-Ante* Comparison of Commodity-based Vouchers and Food Transfers

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Summary. — This article presents a new analytical tool for *ex-ante* comparison of the cost-effectiveness of two transfer modalities in pursuing specific nutritional objectives. It does so by introducing a metric to score the nutrient value of a food basket—the Nutrient Value Score (NVS)—and explains how this metric can be combined with full supply chain analysis and costing to generate a new tool, the Omega Value. The use of the Omega Value allows policy-makers who design a program with nutrition objectives to compare direct food transfers and commodity-based food vouchers in terms of both cost efficiency and cost effectiveness.

Key words — transfers, vouchers, food, nutrient access, cost effectiveness, response analysis

1. INTRODUCTION

Traditionally, programs with nutrition objectives have relied on in kind (or direct) food transfers. More recently, both cash and vouchers have been increasingly used in a wide variety of food assistance programs. While having additional options in terms of transfer modality is certainly an advantage, policy makers require decision making tools to guide their modality selection.

This paper contributes to the debate on optimal choice of transfer modalities. However, it does not consider all of those possible modalities, nor does it elaborate on the full range of objectives that those transfers can potentially pursue. More specifically, the paper focuses on the optimal choice between two modalities (direct food transfers and commodity-based food vouchers) in the context of programs with specific nutritional objectives, ensuring in particular access to the full range of essential nutrients by closing nutrient access gaps through food assistance programing.

While not considering cash transfers and programmatic objectives other than nutrition, the paper draws on the broader issues and challenges that shape decision-making on transfer selection and concludes with a discussion of the opportunities and limitations of applying the proposed tool to other transfer modalities such as cash transfers or value-based vouchers.

The paper is structured as follows. The next two sections review the general literature on transfer modalities (Section 2) and tools for response analysis (Section 3). These set the stage for the introduction, construction, and application of the proposed new tool, as presented in detail in Sections 4, 5, and 6. Potential applications and conclusion are offered, respectively, in Sections 7 and 8.

2. LITERATURE REVIEW

Various reviews have captured the evidence base and main empirical and practical quandaries surrounding alternative transfer mechanisms (Bailey & Harvey, 2011; Barrett, 2002, chap 40; Creti & Jaspars, 2006; Gentilini, 2007; Harvey, 2007; Rogers & Coates, 2002). In general, these have found that transfers' comparative performance should be interpreted in the light of context-specific factors, including markets, implementation capacity, beneficiary preferences, and effects

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on social relations. These factors mediate and shape the effectiveness and efficiency of alternative interventions, the performance of which should be interpreted in the light of the objectives they pursue.

The economic analysis of alternative transfers for food consumption objectives is generally based on the neoclassical framework set out by Southworth (1945). According to this theory, if the size of a food transfer (or a voucher) is less than what a household would have consumed without it, then the transfer is considered "inframarginal". This allows the recipient to simply purchase less of the food from their own resources, rendering the in-kind or voucher transfer equivalent to cash. The transfer is "extra-marginal" if its size is greater than the amount the household would have consumed in its absence. If food is not re-sold on the market, resold below the market price or resale entails high transaction costs, then a difference in terms of expected food consumption arises between in-kind/voucher food transfers and an equivalent cash transfer. Indeed, an extra-marginal transfer may have two effects—an income effect and a substitution (or price) effect. Conversely, the effect of an inframarginal ration is equivalent to the income effect only (that is, the value of the income transfer from food), regardless of its resale status.

While the Southworth framework has, in many ways, laid the basis for informing the microeconomics of food policy analysis, it also presents significant limitations. Clearly, the theory envisages a difference between food consumption patterns only at the extensive margin of the household's food purchase possibilities. Field experiments have rejected the assumed equivalence of inframarginal transfers: for example, factors such as intra-household resource allocation dynamics, behavioral effects like mental accounting, incomplete market availability of products have contributed to the so-called "cash-out puzzle"—that is, an observed difference between in-kind and cash transfers even when the transfer is inframarginal (Alderman, 1986; Basu, 1996; Breunig & Dasgupta, 2005; Coate, 1989; Dreze & Sen, 1989; Faminow, 1995; Haddad, Hoddinott, & Alderman, 1997; Senauer & Young, 1986; Thaler, 1990).

For example, Fraker (1990) showed that, in the United States of America, an additional dollar transferred in kind increased food consumption by 17–47%, but for cash the increase was just 5–13%. The effect on nutrient availability was ranged approximately from 2 to 7 times larger for food transfers as opposed to cash. Similarly, Fraker, Martini, and Ohls (1995) showed that the switch from in-kind to cash transfers triggered a reduction in food expenditures of between 18% and 28%. However, there is a dearth of information with respect to the comparative performance of alternative modalities in terms of improving nutritional outcomes. While there is evidence from studies in high and middle-income countries (Barrett, 2002; Case & Deaton, 1998; Manley, Gitter, & Slavchevska, 2012; Skoufias, Tiwari, & Zaman, 2011), more evidence on how choice of modality affects the ability to deliver nutrition outcomes (including diet quality as opposed to purely energy or calories) is required, particularly in lower-income contexts.

One careful study of four programs in Bangladesh, using different transfer mechanisms—rice, rice and cash, cash, and atta flour—found that only one transfer modality, atta flour, had an impact on women's nutritional status. Several factors are likely responsible; atta flour is a fortified product, the transfer was extra-marginal, and household food preferences are for rice such that the intra-household consumption of atta flour is skewed toward women (Ahmed, Quisumbing, Nasreen, Hoddinott, & Bryan, 2009). This study illustrated the complexity of impacts of different modalities. More evidence is needed on how modality choice influences the ability to deliver diet quality (micronutrient) as opposed to purely energy (calories) to beneficiaries.

Markets are a crucial factor to determine the most appropriate transfer modality. In contexts where markets work poorly (e.g., due to structural constraints or temporary disruptions in the food supply chain), food transfers are more likely the more appropriate response. Indeed, in those situations vouchers and cash transfers place the risk of supply failures on beneficiaries and generate or exacerbate inflationary effects. When markets work better, the use of cash and vouchers may be more cost efficient than food transfers.

Generally, markets do not work perfectly and even "competitive" ones may leave scope for very localized and time-bound rent extraction. Therefore, it is important to identify the "degree of imperfection" of markets, rather than adopt binary approach against a hypothetical benchmark. The issue is further complicated by the need to understand not only how markets work in general, but also the extent to which they work for the poor in particular (Donovan, McGlinchy, Staatz, & Tschirley, 2006; WFP, 2008b).

Apart from market analysis, there are many non-market factors that should inform transfer modality selection. Clearly the objective of the transfer program is a key one. Additionally, security, specific nutritional objectives, gender dynamics in the recipient population, cost, implementing agency capacity, and timeliness are also critical in evaluating the feasibility of a food, cash, or voucher intervention (Michelson *et al*., in press). The ability of various transfers to meet program objectives is highly context dependent (Harvey, Proudlock, Clay, Riley, & Jaspars, 2010; Upton & Lentz, 2011). Besides analysis, donor resources, organizational capacity, compliance requirements, and in some cases, the sheer circumstances of the food security problem also matter (Maxwell, Parker, & Stobaugh, 2013).

There are also cases where in-kind food transfers may be more appropriate in reaching specific objectives even when markets work reasonably well. Markets may function, but age adequate, nutritious food for vulnerable groups such as young children may not be readily available. Even if available, beneficiaries may—when given cash or a value-based voucher [2]—not choose the product which addresses their nutritional needs, but instead choose a less nutritious, more preferred one. While in the long term, education of beneficiaries could enable the right choices, program designers and policy makers often cannot wait until education results in the desired behavior.

Implementation capacity also plays a key role in shaping the choice for the appropriate transfer modality. Effective and efficient voucher and cash transfer programing can only be achieved where adequate and accessible financial partner institutions and appropriate monitoring, reporting, and control systems are available. Similarly capacities and expertise are required for implementing food transfers including procurement, storage, and logistics capacity, transport networks, and distribution agents. Importantly, different implementation arrangements imply different configurations of set-up and variable costs, which should be duly reflected in decision-making.

While it is difficult to generalize people's preferences for a certain transfer modality, some general patterns can be discerned. The preference for cash, value, or commodity vouchers or in-kind food aid varies sometimes by location, season, and gender. Households living far from markets tend to prefer in-kind food transfers, while those living close prefer vouchers and cash transfers. [3] There are indications that people prefer in-kind food transfers during the lean season due to higher