Estimating the Costs of Alternative Large-Scale Food Fortification Programs in Burkina Faso: A MINIMOD Tool for Informing Policy Discussions

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Objectives: Decisions regarding the types and amounts of micronutrients to include in large-scale food fortification (LSFF) programs should consider costs. The Micronutrient Intervention Modeling (MINIMOD) cost tool estimates the costs of alternative LSFF programs, with focus on stakeholders' cost burdens.

Methods: An activity-based cost model was developed and adapted to the context of Burkina Faso. Key national characteristics (e.g., population size), and information on existing and hypothetical LSFF programs (e.g., adherence to standards) establish the model's platform. Private- and public-sector costs (as relevant) of designing, implementing, and managing LSFF are included. The model contains a micronutrient premix cost calculator. LSFF-vehicle-specific consumption patterns (e.g., g/day of fortifiable wheat flour consumed, based on household survey data) link costs to program reach. A ten-year planning time horizon is adopted.

Results: The premix required to fortify wheat flour with iron and folic acid (60 mg/kg of ferrous fumarate, 2.5 mg/kg of folic acid – the current standard) is estimated to cost ~$2.11 (2020 USD) per MT of fortified flour, with overall 10-year program costs of ~$2.4m; ~25% faced by industry (e.g., internal quality control), ~23% by government (e.g., external monitoring), and 52% by stakeholders who would cover premix costs (generally assumed to be industry, with some pass-through to consumers). Cost per person and cost per person reached are ~$0.010 and ~$0.023, respectively. Including zinc in this premix (95 mg/kg of zinc oxide) would increase the cost per MT of fortified flour to ~$3.02, total 10-year program costs to ~$3.3m, and cost per person and per person reached to ~$0.014 and ~$0.032, respectively. The premix's share of costs increased to ~54%.

Conclusions: The levels and compositions of the costs should be considered when designing and managing LSFF, in part because different stakeholder groups, including consumers, will be called upon to pay them. Premix costs are one main cost driver; increasing the number and/or amounts of fortificants will increase overall program costs and shift the burden of costs among stakeholders.