

FOOD-FEED COMPETITION. INCOME DISTRIBUTION AND WELFARE  
IMMISERIZATION: A SIMULATION ANALYSIS AND THE EMPIRICAL  
EVIDENCE

by

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## Abstract

Despite improvements in agricultural technologies and storage facilities, and presence of trade, famines and food shortages continue to plague LDCs. It has generally been argued that food crises are a consequence of market and institutional failures. However, Yotopoulos put forth the hypothesis, albeit with very little rigor, that food shortages may arise out of competition between food and feed. He argued that if, with growth, the size of the middle class in a LDC increases, then their demand for "luxury" food commodities, namely, meat will increase. This will increase the demand for meat and meat price. Given that conversion of corn to animal protein is an inefficient process, a large part of the corn output would then be diverted away from the food grain market and be used as feed. Corn, however, is the staple diet of the poor. The shortage in the marketed surplus of corn, and the increase in corn price will, therefore, affect the welfare of the poor adversely.

While the hypothesis of Yotopoulos had broad support from the existing empirical literature, it had one serious shortcoming. It did not take into account the supply side response to changes in asset redistributions (in the wake of the larger middle class) and price changes. It also ignored the effects of price changes on meat demand itself. The related literature too failed to tie together the demand shock and the response of supply, and hence examine (1) the feasibility of food-feed competition, and (2) the impact of asset and income redistribution, and technological improvement, in the presence of food-feed competition, on the welfare of the poor. This dissertation develops a model, using stylized assumptions, and uses simulation techniques precisely to this end, to fill this caveat in the existing literature.

The theory-simulation analysis in the dissertation has shown that food-feed competition can well be immiserizing for the poor. But, at the same time, an asset

redistribution in favor of the poor and the assetless, leading to an increase in the size of the middle income class, will not make the poor worse off as a rule. Indeed, under certain conditions, the landless laborers (i.e., the poor) might actually be better off.

Perhaps the most important implication of the model is that in the absence of market or institutional failures, asset and income redistributions in LDCs, favoring the poor and the landless laborers, would more often than not increase the welfare of the poorest sections of the population, i.e., those that are below the subsistence level, even in the presence of food-feed competition. At worst, these consumers would face a *status quo* with respect to their welfare. However, under similar conditions, consumers belonging to the lower middle class, which can be interpreted as comprising of those who are above the subsistence level but whose only source of income is wages, might well face a decrease in their welfare.

The capability of the phenomenon of food-feed competition to become welfare immiserizing is crucially dependent upon the expenditure and price elasticities of demand for the different food commodities, especially meat. Estimates of the Engel curves, using PLSS data for 1985-86 and 1990, generally support the hypothesis of high expenditure elasticity of demand for meat. But the analysis also suggests that a higher relative price for meat would lead to a substitution of meat by vegetables and fruits. However, the relevant cross-price elasticity is low such that the aforementioned substitution can crowd out the increase in meat demand only partially. Hence, at least in the Peruvian context, it is not only possible for food-feed competition to emerge, but also to be sustained over the long run.