Available online at www.sciencedirect.com
SCIENCE DIRECT®
Food Policy 31 (2006) 288–301
FOOD POLICY
www.elsevier.com/locate/foodpol

# On the costs of food price fluctuations in low-income countries

Robert J. Myers *

*Department of Agricultural Economics, Michigan State University, East Lansing, MI 48824, USA*

**Abstract**

Conventional welfare measures of the costs of food price fluctuations in low-income countries are extended to allow for both economic growth and food security effects. The analysis reveals that growth and food security effects may dominate more conventional welfare costs of food price fluctuations, although estimating the empirical magnitude of the effects is hampered by the lack of consensus on the extent to which food price fluctuations actually reduce economic growth and food security. Even if the welfare costs of food price fluctuations are high there are many challenges to the design and successful implementation of price stabilization schemes.


*Keywords:* Food price fluctuations; Welfare; Growth; Food security; Stabilization

## Introduction

It is widely acknowledged that food price fluctuations can be costly, especially in low-income countries where food dominates budgets and economic activity. Poor households use a variety of mechanisms to cope with income and consumption risk, including diversification of cropping patterns, using risk-reducing inputs (e.g. irrigation), obtaining off-farm employment, storing food, and/or buying livestock and other assets as a store of wealth for hard times (Rozenzweig and Stark, 1989; Rozenzweig and Wolpin, 1993; Townsend, 1994). These coping mechanisms are valuable but appear not to fully compensate for

* Tel.: +1 517 432 3649; fax: +1 517 432 1800.
*E-mail address:* myersr@msu.edu.

0306-9192/$ - see front matter 
doi:10.1016/j.foodpol.2006.03.005

the lack of formal credit and insurance markets that plagues so many poor countries (Behrman, 1988; Foster, 1995; Townsend, 1995).

On the other hand, there is much less agreement on the size of the costs of food price fluctuations, and on the appropriate role for public policy in reducing fluctuations or mitigating their effects. Some have argued that while the distributional effects of price fluctuations may be significant, the net loss in economic efficiency is small and difficult to capture with price stabilization schemes (e.g. Newbery and Stiglitz, 1981; Williams and Wright, 1991; Jha and Srinivasan, 1999). Others have argued that these traditional welfare measures ignore the contribution that food price stability can make to economic growth and food security, which makes the cost of food price fluctuations much higher than is suggested by the standard welfare analysis (McGregor, 1998; Timmer, 2000; Dawe, 2001).

The main objective of this paper is to extend the standard welfare analysis of the costs of food price fluctuations under incomplete credit and risk markets to include economic growth and food security effects. It is found that even apparently small economic growth or food security effects may dominate traditional welfare measures of the costs of food price fluctuations. However, existing empirical evidence on the relationship between food price fluctuations and economic growth, and between food price fluctuations and food security, is sparse and ambiguous, leading to considerable uncertainty about the quantitative magnitude of these effects. Nevertheless, the extended welfare analysis does help to conceptualize the issues in a formal way, and will facilitate expanded welfare measurement as more empirical evidence becomes available. The paper also attempts to place the analysis and discussion in the broader context of benefits and costs of alternative policy approaches to dealing with food price fluctuations.

The paper begins by re-examining standard welfare analysis of the costs of food price fluctuations under incomplete credit, insurance, and storage markets (e.g. Newbery and Stiglitz, 1981). Next, the limitations of the standard welfare approach are discussed and the framework is extended to show how economic growth and food insecurity effects can be included. The final part of the paper discusses price stabilization policies.

## Standard welfare measurement of the costs of food price fluctuations

Standard welfare costs of food price fluctuations are re-examined here by following the approach of Newbery and Stiglitz (1981) and using second-order Taylor series approximations of utility to define an equivalent variation measure of the welfare costs of food price fluctuations. However, while Newbery and Stiglitz generally focus on separate welfare measures for consumers and producers, here welfare effects are evaluated for a household that may both produce and consume food. The household approach seems more appropriate in the low-income country context and is similar to Finkelshtain and Chalfant (1991) and Barrett (1996, 1999), although these authors did not explicitly study the welfare costs of food price fluctuations.[1] Furthermore, these previous household risk models are static two-period models while the approach taken here is explicitly multi-period. A dynamic modeling approach seems more appropriate for the present purpose because price fluctuations occur over time.

[1] Finkelshtain and Chalfant (1991) study the comparative static effects of price risk in a household model, Barrett (1996) focuses on the effects of price risk on farm productivity, and Barrett (1999) uses a household model under uncertainty to examine issues surrounding coalition building and political support for agriculture.