



# Livestock Market Dynamics and Local Vulnerabilities in the Sahel

MATTHEW D. TURNER  
*University of Wisconsin, USA*

and

TIMOTHY O. WILLIAMS \*  
*International Livestock Research Institute, Ibadan, Nigeria*

**Summary.** — As institutions that facilitate the conversion of livestock to grain and adjust livestock populations to local forage availabilities, livestock markets play important economic and ecological roles in dryland Africa. Using a comprehensive database of 1,580 sales of livestock owned by members of 54 households in western Niger over a major drought-and-recovery cycle (1984–94), the effect of real livestock markets on stocking decisions and the economic vulnerability of rural households was investigated. While livestock markets are shown to facilitate destocking of animals from drought areas, price formation is socially-biased (by gender, wealth, residence) reflecting the differential access and powers within local markets. © 2002 Elsevier Science Ltd. All rights reserved.

*Key words* — Africa, Niger, real markets, livestock prices, drought, gender

## 1. INTRODUCTION

Contemporary rural development strategies in the developing world emphasize the positive role of markets. The liberalization of markets in rural areas is seen as a mechanism for generating price signals that will stimulate local investment and increase the economic and environmental security of smallholders (Peet & Watts, 1993; Tiffen, Mortimore, & Gichuki, 1994). The promise accorded to markets is based in large part on abstract models of market functioning (Hewitt de Alcantara, 1992; Swedberg, 1994). Institutional, infrastructural, and cultural conditions in rural areas may deviate strongly from those assumed (Ensminger, 1992; Fairhead, 1992; Platteau, 1994; Ribot, 1998; Thornbecke, 1993). As a result, rural markets may function quite differently than assumed by development practitioners. How features of the institutional and sociocultural environments of rural markets affect market function will help increase understanding of the true effects of the extension of market institutions in rural areas and of neoliberal reforms.

This paper investigates the functioning of livestock markets in the Sahel.

In dryland areas of the world, livestock represent major marketable assets held by most rural people (Binswanger & McIntire, 1987; Galaty & Johnson, 1990; Jarvis, 1974, 1980). Livestock are also a voracious form of capital. The distribution of livestock grazing is a major factor behind anthropogenic changes in savanna and steppe environments of Africa (Powell, Fernandez-Rivera, Hiernaux, & Turner, 1996; Reid & Ellis, 1995; Scoones, 1989; Turner, 1998; van Keulen & Breman, 1990).

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There is long-standing environmental concern about spatial and temporal imbalances between livestock stocking rates and fodder resources (Dodd, 1994; Scoones, 1993; Turner, 1993). A number of analysts have emphasized the efficiency and flexibility of unregulated livestock markets, characteristics that could be harnessed to facilitate adjustments of livestock stocking rates to local forage resources across time and space and improve on the indigenous "opportunistic strategies" in the semi-arid region (Fafchamps & Gavian, 1996; Sandford, 1983; Scoones, 1994).<sup>1</sup> Markets could greatly facilitate the movement of animals from areas of forage scarcity and crop loss, thereby maintaining the regional herd (by reducing mortality) under conditions where rainfall patterns shift continually. In regulating local livestock densities, livestock markets are seen as institutions that could reduce the ecological vulnerabilities of contemporary, more sedentary agropastoralism. A major empirical question is the reliance of livestock owners on markets during time of deficit and whether the regional network of local livestock markets can adequately play this destocking and restocking role.

As an analogue to market-based environmental regulation in the First World, the extension and liberalization of livestock markets in dryland areas of the Third World are seen as providing a powerful means to facilitate the destocking and restocking of livestock in a spatially-differentiated manner. But livestock markets also act as critical institutions through which rural peoples recurrently convert wealth stores to cash and to grain. A major question that remains underexamined is the degree to which the market functions emphasized by "flexible stocking" advocates have distributional consequences which may work to exacerbate the economic vulnerability of the rural poor. Despite new academic optimism about the role of markets in sustaining dryland peoples and environments, there are two features of real market function which may have significant distributional consequences. The first is whether livestock price dynamics are predictable enough to allow the rich to profitably "trade across time" to the detriment of less economically-buffered actors in the market, as has been found in many grain markets (Clough, 1986; Hill, 1972; Watts, 1983). The second is the degree to which the institutional and sociocultural contexts within which livestock markets operate lead to livestock price forma-

tion that is decidedly non-neutral—in other words, the price received for an animal is not determined solely by the characteristics of the animal but also by the social characteristics of the seller and buyer. If real livestock market functions deviate strongly in these ways from those assumed by static abstract models, the nature of policy reforms in the area of livestock marketing need to be rethought. The potential for such deviations needs to be taken seriously since they are, without significant policy intervention, most likely persistent, given the resource poverty and population sparsity of most dryland regions.

In this paper, we investigate livestock market functioning as it relates to the rural smallholder. We are concerned on how market functioning influences local ecological and economic vulnerabilities. Ecological vulnerability is increased if livestock populations do not fluctuate with forage availability. Livestock markets most likely reduce ecological vulnerability if livestock populations decline during drought periods with livestock sales dominating deaths and livestock purchases contributing significantly to post-drought livestock population recovery. Economic vulnerability increases as the ability of rural households to meet subsistence requirements across the drought cycle declines. Markets influence economic vulnerability by affecting the ability of rural people to obtain grain through the sale of their major wealth stores: livestock. Livestock markets are most likely to increase economic vulnerability if certain particularly vulnerable groups obtain lower prices for the livestock they sell to purchase grain.

Using a database that traces the destinations (deaths, sales, gifts, slaughters) of 3,917 of 4,843 livestock owned by members of 54 households in western Niger across an 11-year period, this paper empirically evaluates three questions. First is the degree to which livestock markets in the study area adequately facilitate the destocking and restocking of livestock across a major drought-and-recovery cycle (1984–94). This question evaluates the potential role that livestock markets play in reducing ecological vulnerability associated with livestock stocking. Second, social information about owners is combined with livestock-specific information to investigate how a livestock owner's "position" with respect to local livestock markets affects the price they receive (after controlling for an animal's species, age and the season and year of sale). By

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