

Editorial

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Commodity Storage, Price Stabilization, and Food Security

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Commodity Storage under Certainty

The debate over the role of commodity storage in reducing price instability to the net benefit to society continues. Most of the early literature deals with stocks and price instability under price certainty. Little attention is given to the effects of stockholding on food security. Some of the earlier works based on welfare economics (Just, Hueth, and Schmitz 2004) include Waugh (1944), Oi (1961), Massell (1970), and Hueth and Schmitz (1972). Waugh concludes that consumers prefer price instability. As a result, there are costs from commodity storage used to generate price stability. Likewise, Oi concludes that producers prefer price instability; hence, storage is costly for producers. Massell demonstrates that in a market setting that included producers and consumers, society prefers price stability over instability. However, Schmitz (forthcoming) argues that this need not be the case given that both consumers and producers prefer price instability. His arguments are based on an explanation of why stocks are not achievable (Schmitz 2018a) and that producers prefer price instability regardless of the source of the instability (Schmitz 2018b).

Later literature expanded the analyses to multi-products. For example, Turnovsky, Shalit, and Schmitz (1980) and Schmitz, Shalit, and Turnovsky (1981) using utility maximization models demonstrated that in the case of multi-products, producers, for example, prefer stability for a subset of the commodities produced but not for the entire set. Tisdell (1972) analyzed stock policy under uncertainty and concluded that the welfare gains from stabilization are highly dependent on the degree of market uncertainty. Feder, Just, and Schmitz (1980) presented a theory of the firm model where, under uncertainty, producers have several risk management tools, including storage. (References to additional papers can be found in Wright and Williams (1984)).

Stockholding: The Impact of Agricultural Policy

Many economists argue that stockholding by the government generates large costs to society. This was especially true for the United States in the late 1990s where the Commodity Credit Corporation (CCC) held excessive grain reserves. The key point is that unlike in the theory of the effects of storage where the free market prevails, U.S. stocks were a result not of storage policies, but rather U.S. farm policy that set the target price for major commodities such as wheat and corn along with loan rates. Given the target prices, the market could not clear because the loan rates were set too high.

Consider Figure 1 which incorporates both a price support and a loan rate policy instrument. In period 1 the equilibrium price and quantity in the absence of government are p_s and q_1 . In period 2, the equilibrium price and quantity are p_r and q^* . Now suppose the government supports price at p_s and sets the loan rate at p_r . What is the effect of a supply shock that shifts supply from S_p to S_1 ? In the absence of the loan rate, the market would clear at price p_c . However, with the loan rate in place, there is storage required of $q_c q^*$, which is equal to the amount cb .

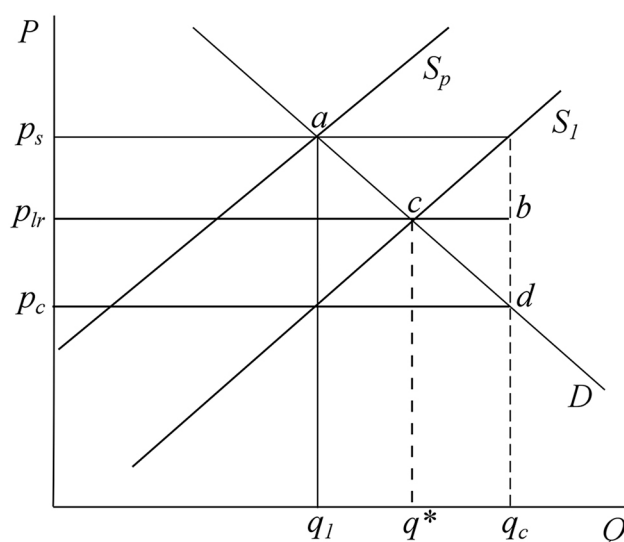


Figure 1: Storage under price supports and loan rates.

Commodity Storage and Food Security in Less Developed Countries

The topic of commodity storage is generally discussed with reference to less developed economies. Most food storage models do not consider the impact of storage on food security. We review storage models that take into account the food security impact from storage (Schmitz and Kennedy 2016). When food security targets are specified in storage models, the gains from storage can be positive.

Storage and International Trade

In this volume, storage, price stabilization, and food security in the context of international trade in agricultural products. Most storage models do not take into account how the opening up of trade reduces the need for storage. The cost and benefits from storage are discussed using food security indicators. When trade is explicit in the models, the welfare gains from storage are greatly reduced because of food supplies available from exporting countries.

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