

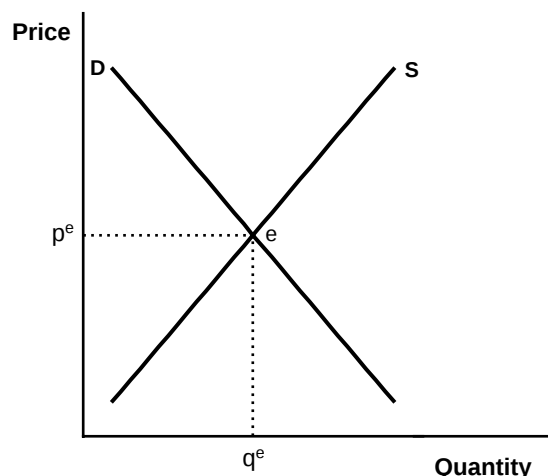
Analytical Framework

Figures 6 through 8 illustrate the effects of marketing loans on commodity markets. Figure 6 starts with a simple no-program situation without market distortions. Market equilibrium is at the intersection of supply and demand at point e with a price of p^e and an equilibrium quantity of q^e . This no-program equilibrium provides a reference point for assessing impacts of the alternative policy situation of a commodity loan program with marketing loan provisions.

Figure 7 illustrates a commodity loan program with marketing loans, with a loan rate that exceeds the no-program price equilibrium. The basic effect of a commodity loan program with marketing loans is that the supply curve is kinked and becomes perfectly inelastic at the loan rate. For any price movement below the loan rate, the producer can capture a marketing loan benefit, through either a marketing loan gain or a loan deficiency payment. Assuming that the sales price for the crop is equal to the posted county price, the marketing loan benefit ensures a per-unit revenue for the crop equal to the loan rate. In this basic marketing loan case, the loan rate becomes the producer incentive price that applies for the supply curve at all prices below the loan rate. The demand function for the commodity is not affected by marketing loans, so it remains the same as in figure 6. A new equilibrium results at point e' at a price of p' and a quantity of q' .

Figure 6

Supply and demand, market equilibrium

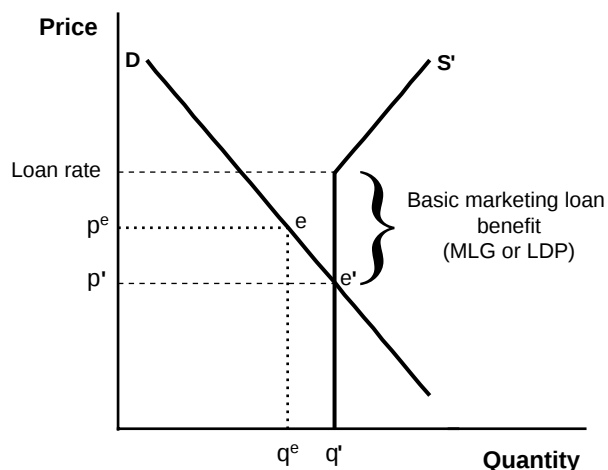


Source: Economic Research Service, USDA.

As discussed earlier, the realized level of per-unit revenue facilitated by marketing loans is higher than the loan rate. Figure 8 depicts this situation. As in figure 7, the supply curve is again kinked and becomes perfectly inelastic, here at a level that exceeds the loan rate by an additional amount of realized per-unit revenue (denoted by " s "). Compared with figure 7, the new equilibrium in figure 8 (at point e'') has a lower price (p'') and a higher quantity (q''). The higher per-unit revenue of the loan rate plus s is obtained by

Figure 7

Supply and demand, basic effects of marketing loans

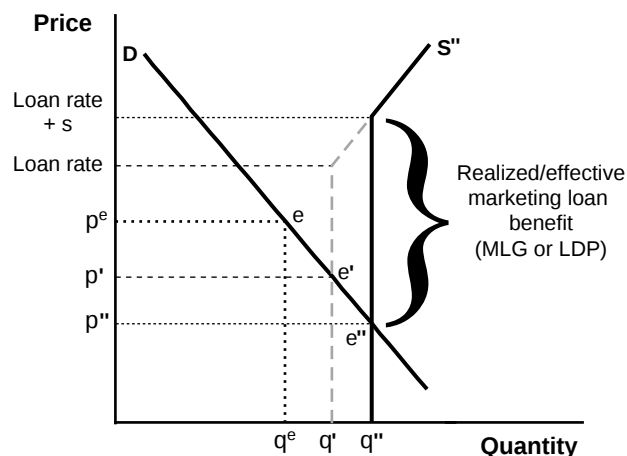


MLG = Marketing loan gain.
LDP = Loan deficiency payment.

Source: Economic Research Service, USDA.

Figure 8

Supply and demand, with realized benefits of marketing loans



MLG = Marketing loan gain.
LDP = Loan deficiency payment.

Source: Economic Research Service, USDA.

augmenting the market price by the marketing loan benefit.⁴ This total per-unit revenue becomes the producer incentive price, providing the economic incentive for q'' to be produced for all prices below the loan rate plus s (or equivalently, all prices below the market price plus the marketing loan benefit).⁵

Comparisons with the no-program equilibrium at point e provide an indication of the effects introduced by marketing loans. With marketing loans, the producer incentive price rises from the no-program price equilibrium level of p^e to a level equal to the loan rate plus the realized additional revenue (s), which also equals p'' plus the marketing loan benefit. That is, in figure 8,

$$LR + s = p'' + MLB$$

⁴ The amount s is not directly observable. However, the market price, the marketing loan benefit, and the loan rate are observable, so s can be derived.

⁵ This analytical framework does not include effects of commodity loan programs and marketing loans in reducing downside revenue risk when market prices are near or below loan rates. This effect could shift the vertical portion of the supply curve further to the right in figure 8 and could make some portion of the supply curve more inelastic for prices above the loan rate plus s . As such, some of the impacts discussed in the following sections could be somewhat understated and some could extend for additional time periods.

with LR representing the loan rate; MLB , the marketing loan benefit; and s and p'' defined earlier.⁶ In response to this higher producer incentive price, farmers expand production (by $q'' - q^e$ in figure 8). Because marketing loans do not affect the demand function, the increase in production moves the equilibrium down along the demand function. At the new equilibrium, the quantity demanded is augmented by the same amount as the production increase ($q'' - q^e$), with increases in both domestic use and exports. The increase in production reduces the market price (by $p^e - p''$ in figure 8). While marketing loans raise the producer incentive price to $LR + s$, the market price is lower at the new equilibrium.

Marketing loan benefits for one crop affect other crops as well. The higher producer incentive price for marketing loan crops shifts the supply curve to the left for other crops that compete with marketing loan crops for planted acreage. The reduction in market prices for marketing loan crops moves the demand curve to the left for crops that compete with (are substitutes for) the marketing loan crops in uses, while moving the demand curve to the right for crops that are demand complements with the marketing loan crops. Empirically, supply adjustments dominate in these cross-commodity effects.

⁶ Although the market price and the marketing loan benefit are observable, they each change and vary inversely with each other. Thus, for analytical purposes the equivalent per-unit revenue to their sum of the loan rate plus s is useful because the loan rate is pre-determined for any given year and a plantings-time expectation for s can be assumed to be relatively constant across years.