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Lecture 11
ECONOMICS OF MANDATED MARKETING PROGRAMS

Outline:

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11.4 R&D Programs
11.5 Sources of Controversy
11.6 Economics of Commodity Check-offs
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References:

Alston, J.M., J.W. Freebairn, and J.S. James. "Incidence, Equity, and Efficiency of Check-off Funded Research and Promotion Programs." *ARE Update* (March/April 2003):1-4. http://www.agecon.ucdavis.edu/outreach/areupdatepdfs/UpdateV6N4/N4_1.pdf

Alston, J.M., J.M. Crespi, H.M. Kaiser, and R.J. Sexton. "Introduction to the Economics of Commodity Promotion Programs." Chapter 1 in H. Kaiser, J.M. Alston, J. Crespi, and R.J. Sexton (eds). *Commodity Promotion Programs in California: Economic Evaluation and Legal Issues.* Peter Lang Publishing 2005.

Carman, H.F. and J.M. Alston. "California's Mandated Commodity Programs." Chapter 2 in H. Kaiser, J.M. Alston, J. Crespi, and R.J. Sexton (eds). *Commodity Promotion Programs in California: Economic Evaluation and Legal Issues.* Peter Lang Publishing 2005.

Alston, J.M., J.M. Crespi, H.M. Kaiser, and R.J. Sexton. "The Economic Impacts of California's Mandated Commodity Promotion Programs." *Review of Agricultural Economics* 29(1)(2007): 40-66.

11.1 Overview of Mandated Programs

Why do they exist?

For the same reason other agricultural policies exist. Either:

- To correct for market failures (collective action to correct for an underproduction of collective goods by individuals).

- To make producers better off (a mechanism to redistribute income to producers from others).

But, rather than the government deciding how to do this, marketing programs allow producers to do it themselves by acting collectively.

Grower cooperatives also allow growers to act collectively, so how are marketing programs different? They are MANDATORY. Once a program is approved, growers MUST pay assessments on their sales. The mandatory nature of assessments is a source of controversy.

Why are they mandatory? Free-rider problem. This will become clearer when we discuss the various activities of marketing orders.

How do they exist?

They are initiated, approved, and funded by the industry.

There are two broad categories of Marketing Programs affecting California agriculture:

- Federal Marketing Orders

  These are authorized by the 1933 Agricultural Adjustment Act and the 1937 Agricultural Marketing Agreement Act.

  In 2002, there were 12 federal marketing orders for fruits, vegetables, and specialty crops that directly affect California crops.

  The focus of federal marketing orders is usually quality regulations and supply controls.

- California State Marketing Programs

  There are 50 of these, which can be broken down into three categories.

  Marketing Orders

  These are the most common (27 of them).

  They are authorized by the 1937 California Marketing Act.

  Initiation of a marketing order requires an industry vote.

  Marketing orders must submit their budgets to the California Department of Food and Agriculture.

  Commissions and Councils

  There are 20 commissions and 3 councils in California.

  These require special legislation, but are more autonomous once they are approved.

  These do not have to submit their budgets to CDFA.

  Councils generally focus more on generating and distributing information regarding health and welfare. For example, the Dairy Council of California sponsors several nutrition education programs for school children. State Marketing Orders and Commissions generally focus on research and promotion.

How important are they?

California's 62 marketing programs covered almost 55 percent of the value of California's 2002 agricultural production, including over 78 percent of animal products, 73 percent of fruit and nut crops, and 43 percent of vegetable crops.

In 2003-04 California commodity programs had total budgeted expenditures of over $208 million, about 1.2 percent of the $16.8 billion total value of the crops covered.

While expenditures as a percentage of total value are relatively small, they have increased significantly over time, and have become increasingly controversial.

What do Marketing Orders Do?

They undertake two broad categories of activities.

Regulatory programs are used to enhance producer profitability through control over quantity or quality of the commodity being marketed:

- Volume control
  - Producer allotments
  - Allocation between markets
  - Reserve pools
  - Market flow regulations (prorates)

- Quality Control
  - Minimum grade standards
  - Minimum sizes
  - Maturity standards

- Packaging Regulation

Check-off funded market support programs are designed to enhance grower profitability through increasing demand or lowering costs (or other more subtle ways)

- Market support (check-off programs)
  - R&D
  - Advertising and promotion
  - Public relations

11.2 Regulatory Programs

- Standardization of Containers or Packs (by size, capacity, weight, or dimensions).

  This kind of standardization can lower handling costs, transportation costs, and transaction costs. It also allows transactions to take place at a distance, rather than requiring face-to-face sales/inspection of commodity (sale by description).

  In the past, central wholesale markets were very important. These are becoming less important, particularly for big retailers and for crops that can be easily described without visual inspection. More sales are made directly between growers and retailers. However, central markets are still important for small specialty retailers (wheat vs. avocadoes).

  7 of the 13 federal marketing orders that affect CA crops have packaging regulations.

- Volume Control

  Volume controls can regulate
  - total volume of a crop marketed
  - how much of a crop goes to different markets (e.g., by end use, fresh vs. processed---milk)
  - flow to market (no gluts or shortages--e.g., citrus prorates controlled the quantity of oranges that went to the fresh market each week)

  One way of regulating volume is to use reserve pools (commodity must be storable)—an important current example of this is almonds (analyze briefly).

  Volume controls are usually used under federal marketing orders rather than state organizations. There are about 40 federal milk marketing orders that coordinate prices in different states for different uses.

  Volume controls have been relatively controversial, because they allow growers to exercise market power at the expense of consumers.

- Quality Standards (e.g., minimum size, grades, sugar content, maturity).

  These standards are intended to maintain or enhance market demand (the argument is that they prevent a reduction in demand, a negative externality). The market failure argument may have merit in this instance.

  e.g., minimum sugar content for grapes.

  There is a premium for hitting the market early, but if a grower harvests his/her grapes too early, they will be sour (low sugar content). Because of the price premium, there is an incentive to send grapes to market early, but doing so lowers consumers' quality expectations and thus their willingness to pay in the future.

  So, a grower sending his/her grapes to market early imposes a negative externality on other growers who market their grapes later, by reducing the price they are able to receive.

  (*Note: This market failure only occurs when the quality characteristic is not observable to consumers--otherwise, they will be able to tell which quality of product they are purchasing, and will not need to use expected shares of the various qualities*)

  Quality standards are a more important element in federal marketing orders.

  Quality standards may reduce transaction costs, similar to packaging regulations.

  But, they can also act as a form of quantity control. Who is really protected by size restrictions? Are such standards just a way of increasing producer price?

11.3 Advertising and Promotion Programs

Because commodity promotion is funded collectively, it is usually generic in nature. The rationale for collective action is that it would not pay an individual producer to fund generic promotion; if all producers benefit "equi-proportionally," then a check-off program means producers pay in proportion to their shares of aggregate benefits.

Promotion accounts for about 80% of the budgets of CA marketing "boards," and is particularly important for fruits and nuts and animal products. Growth in commodity program budgets is primarily due to increases in promotional expenditures.

Given all the money that is spent on promotion, an important question is: Does it pay?

Relevant questions to evaluate promotion:

- Does advertising shift demand?
- Does the demand shift cause a price increase?
  - (Producer net benefits can arise only when the producer price (or average revenue) increases. This occurs when demand shifts, and when supply slopes up.)
- Does the price increase enough so that the increase in revenues covers the cost of promotion?

Some results can be seen theoretically, but mostly, these are empirical matters.

Figure 11-1 shows the effect on producer surplus of an advertising-induced increase in demand funded by a check-off. Suppose advertising causes demand to increase from D_0 to D_1. Then price and quantity would increase from (P_0, Q_0) to (P_1, Q_1) and producer surplus would increase by area a+b+c+d+e.

Now suppose we introduce a check-off (tax) to pay for the advertising. So long as the check-off per unit is less than the amount of the shift up of demand, the net effect of price, quantity, and producer surplus will be positive. In figure 11-1, the per unit check-off is **t** per unit, less than the shift up of demand, **m** per unit.

Relative to the equilibrium at (P_1, Q_1), the check-off causes a reduction in price and quantity to (P_2, Q_2), and a reduction in producer surplus equal to c+d+e.

The net effect of the combination of the advertising and the check-off to fund it *relative to the equilibrium at* (P_0, Q_0) is an increase in price and quantity and an increase in producer surplus of a+b.

11.4 R&D Programs

Marketing groups fund research regarding production at the grower level, distribution, and even consumption.

Examples: Development of new varieties that are resistant to certain pests, or new varieties that have better handling properties (increase demand). Also, processing research and market research.

Research expenditures account for about 8% of the budgets of commodity boards, and have remained fairly constant as a proportion of commodity value (about 0.1%).

Research is relatively important for vegetables and field crops.

Since R&D and technology policy is the subject of another lecture we will deal with it only briefly here.

Research into farming might shift the supply function down, to the right (increasing supply of the farm product). Processing or marketing research might increase the demand (just like advertising).

In either case (and just like the case of promotion), there is a net increase in producer surplus, if the net effect of a check-off to fund research is to cause an increase in the quantity supplied. (That is, if research reduces costs or increases consumer willingness to pay by more than the check-off per unit adds to costs.)

11.5 Sources of Controversy

- Self-Help vs. Help-Yourself

  Self-help implies that producers are able to help themselves by acting collectively. Help-yourself implies that producers are helping themselves to benefits by hurting others.

  - Should marketing orders be allowed to benefit growers at the expense of consumers, or society as a whole?

  - Do volume controls just allow growers to exert monopoly power and to harm consumers?

  - Do quality standards correct a market failure, or would consumers be better off if lower quality fruit were allowed to reach the market?

  - Does dumping of under-sized fruit correct a market failure?

  - Should growers be forced to sponsor generic advertising if they would prefer to differentiate themselves? Blue Diamond

- Supreme Court question: Does forcing growers to pay for generic advertising infringe on their 1st amendment rights? Supreme court said no, not if they substantially benefit from it.

- What about consumer welfare effects?

- What about cross-commodity effects on other producers?

- One main result is that (Federal) marketing orders are now obliged (under the 1996 Farm Bill) to get an outside evaluation of the benefits to producers from the marketing order's activities ==> big bucks for agricultural economists!

11.6 Economics of Commodity Check-offs

Marketing orders often use mandated check-offs to fund programs such as

- R&D
- commodity promotion
- industry public relations

Since producers are choosing to tax themselves, is there a public policy issue here? Why? Two reasons:

- the checkoffs are mandatory, not every grower needs to (or does) support the policy but they all are required to participate
- the costs of the checkoff are not all borne by growers

INCIDENCE OF A CHECK-OFF

Figure 11-2 shows the incidence of a per unit check-off (tax) on a commodity of t per unit, treated as an effective shift of the supply function facing consumers. S_2 represents the supply function with no tax, S_1 represents the supply function when producers have paid the tax (i.e., marginal cost of production plus tax).

As a result of the tax:

output (and consumption) falls from Q_2 to Q_1

consumer price rises from P_2 to P_1

producer price falls from P_2 to $P_1 - t$

Welfare effects are

$\Delta CS = -(a+b+c)$

$\Delta PS = -(d+e+f)$

$\Delta TS = +(a+b+d+e)$ = revenue raised by the tax

$\Delta NS = -(c+f)$

So, when producers elect to tax themselves, they impose costs on consumers and on society as a whole, and gain revenue of (a+b+d+e) in exchange for a loss of (d+e+f) or a net gain of (a+b-f) – if only they could simply redistribute the revenue among themselves.

Alternatively, when they spend the revenue of (a+b+d+e) they only have to make a gain to producers of (d+e+f) in order to regard it as a good policy – producers would support a policy that could involve a net social cost of (a+b+c).

In addition, this analysis does not look at the distribution among producers.

Depending on how the money is spent, some producers might not benefit from the program. It only has to provide a net benefit for the majority of producers to be approved, and this might mean losses for other producers, consumers, and society as a whole.

INCIDENCE OF A RESEARCH-INDUCED SUPPLY SHIFT

Figure 11-2 also can be interpreted as a model of the effects of a research-induced supply shift, a real shift of the supply function facing consumers. Here, S_1 represents the supply function with no R&D, and S_2 represents the supply function after a research-induced supply shift down by t per unit.

As a result of the supply shift:

output (and consumption) rises from Q_1 to Q_2

consumer and producer price falls from P_1 to P_2

Welfare effects are

$\Delta CS = + (a+b+c)$

$\Delta TS = + (a+b+c+d+e+f)$

$\Delta PS = + (d+e+f)$ (since b+e+g = a+b+d+e by the law of parallelograms)

Suppose the R&D cost (a+b+d+e), then

$\Delta NS = (c+f)$

In other words, if a check-off of t per unit could be used to finance a per unit cost saving of t per unit (on every unit, giving a parallel supply shift) then there would be no net effect on anything.

If it caused a supply shift greater than t per unit, then both producers and consumers would gain, and their benefits would be in proportion to their costs.

This makes a check-off a relatively fair way of financing commodity R&D (and promotion) programs – compared with using taxpayer dollars.

Since general taxpayer dollars involve deadweight losses, too (perhaps costing society $1.20 per $1.00 of government spending), commodity check-offs might also be more efficient taxes for financing industry-specific public goods.

11.7 Price Supports without Supply Control – Almond Reserve Policy

The California almond industry provides a good example of a common general issue in commodity marketing programs:

> what happens if you have a policy that effectively generates profits for producers but there are no effective barriers to entry (e.g., set a minimum price, above the market clearing price, with no effective mechanism for controlling supply)?

In a competitive industry, if there are no barriers to entry and no other supply control mechanisms, profits created by a marketing order will stimulate responses by producers (including existing producers and new entrants) to compete for the profits until the profits are eliminated.

ALMOND RESERVES

The California almond industry uses reserve policies to control supply to the market in order to raise (and stabilize) producer returns. This policy is carried out by the Almond Board of California (ABC), established under a federal marketing order. There are two types of reserves

allocated reserve: a certain percentage of the total crop is *allocated* for nonedible uses (e.g., diverted for stockfeed), raising the price on the edible market

un-allocated reserve: a certain percentage of the total crop is required to be held off the market until the Almond marketing board determines that the stocks can be released
The unallocated reserve acts as a type of buffer stock, within a season, or from one season to the next, aiming to stabilize prices.

Almonds are characterized by alternate bearing (high crop followed by low crop), and nuts are storable at low cost.

An appropriate question is why we think the market (i.e., private speculators) would fail to store the right amount from one year to the next (i.e., if it is profitable for the industry to act collectively to store almonds, it should be profitable for a private speculator too).

The allocated reserve is more interesting, since there is potential for the industry (and the state, and the nation) to gain from the application of an allocated reserve.

Figure 11-3 shows the market for California almonds. In the short run, supply is perfectly inelastic at S_{SR}, and the competitive equilibrium price is P_0 with C_0 being sold domestically and Q_0 - C_0 being exported.

Suppose a fraction of production (k) is diverted to livestock feed, for a net return of zero.

Then total sales are reduced to $(1\text{-}k)Q_0$, and domestic consumption falls to C_1 when the price rises to P_1, yielding a gain to producers of (a+b+c–f), a loss to domestic consumers of (a+b), and a net gain to the United States of (c – f).

LONGER-RUN IMPLICATIONS

Notice the similarity to the tobacco program story. What's the important difference? In the tobacco industry the long-run supply is fixed by the policy, not just the short-run supply.

In the long run, the supply of California almonds is close to perfectly elastic (at, say P_0). The higher price caused by the almond reserve policy, if it is effective, benefits overseas producers as well as California producers.

It stimulates additional production by existing producers and entry by new producers both overseas (shifting export demand facing the U.S. industry to the left) and in California (shifting U.S. supply to the right).

Over time, an ever-increasing fraction of U.S. production would need to be set aside each year in order to sustain the higher price, P_1.

Like tobacco, the dynamic supply and demand response to the almond policy reduces the policy's effectiveness. The consequences are more serious for almonds since, unlike tobacco, there is no effective supply control.

The only thing that makes it at all worthwhile for the almond industry is that short-run supply response is so inelastic. Eventually, however, the policy must be counterproductive.

PROMOTION?

The same type of problem arises with **generic** almond promotion funded by the ABC.

If it works, the promotion will attract new entry and supply response. Promotion cannot be profitable unless it raises the average revenue received by producers.

In the long-run, if supply is perfectly elastic, advertising cannot be profitable.

The same would be true in the California (or New York) fluid milk industry, because demand facing the state is (almost) perfectly elastic—the state is a "small country" in trade. Policy-created barriers to entry are needed to make profitable generic milk promotion possible.

Figure 11-1. *Effects of Generic Advertising Funded by a Check-off*

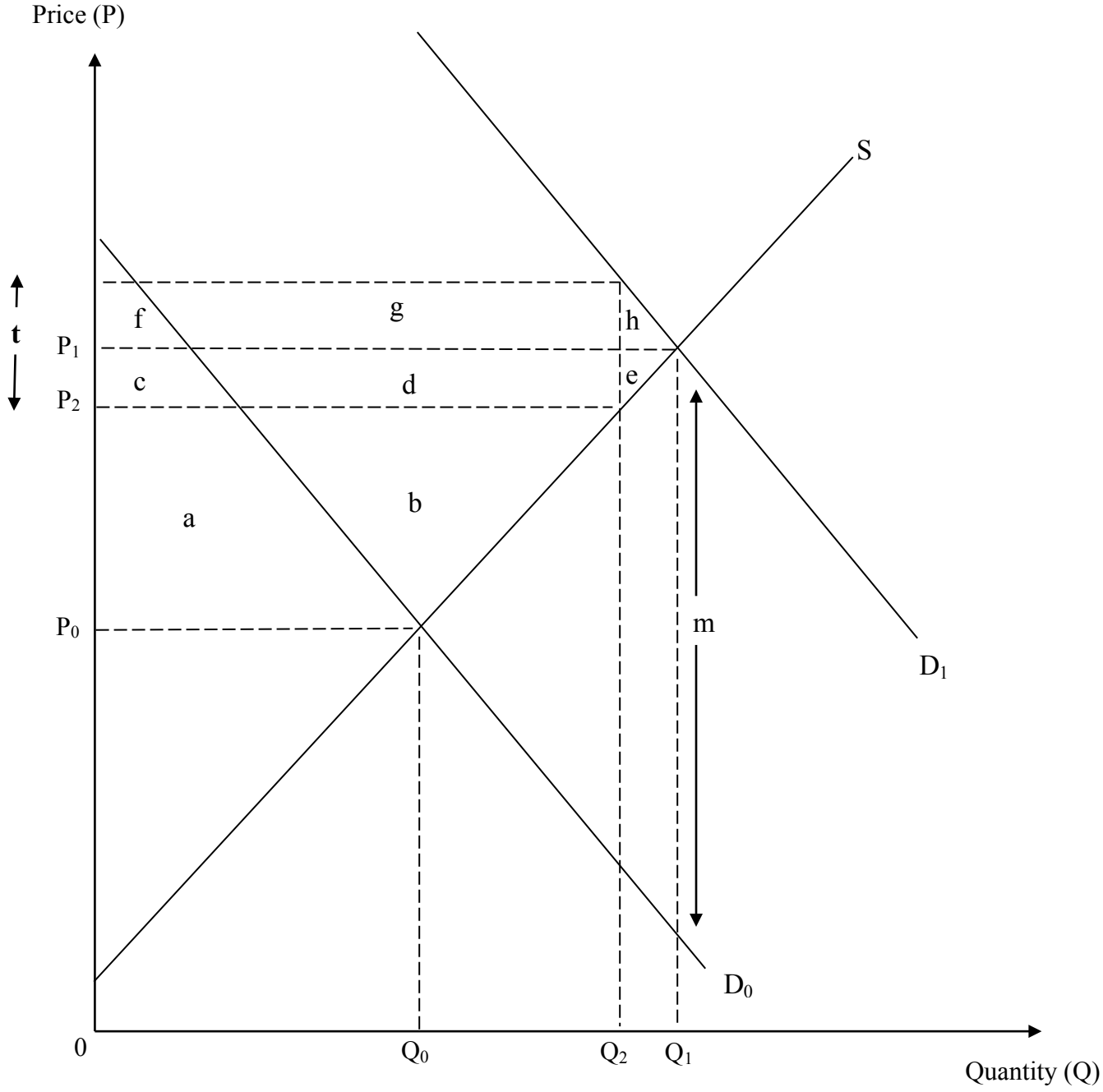

Figure 11-2. *Effects of a Check-off (or R&D)*

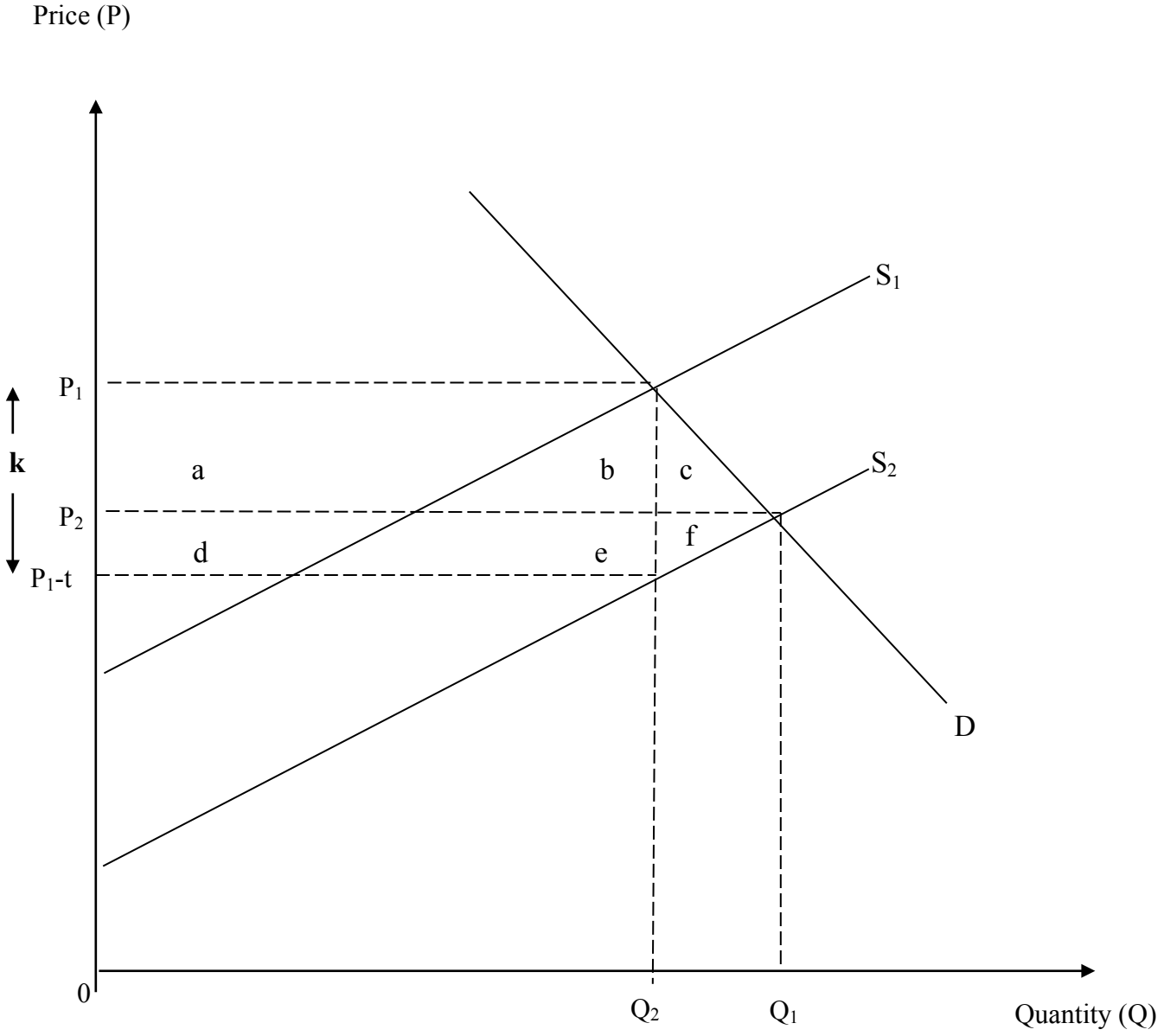
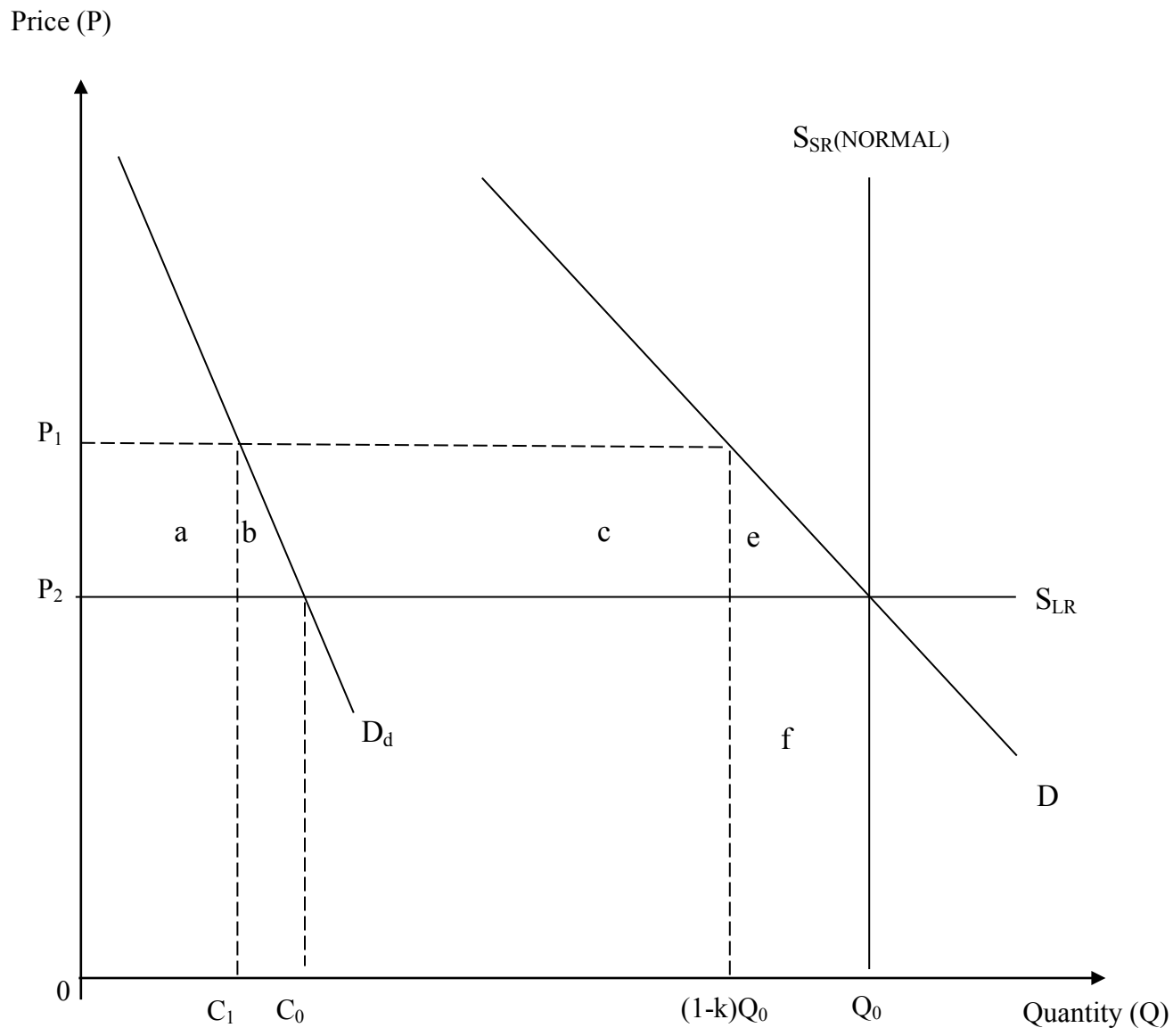
Figure 11-3. *Effects of Almond Reserve Policy*