Topics

- Why intervention in agriculture?
- Environment intervention
- Government support programs
  - Subsidizes
  - Loan rates
  - Acreage set aside
  - Target
- Demand enhancements
  - Domestic
  - Trade
- Other

The “Farm Problem”

- Inelastic demand and a bumper crop
- Environmental Issues
- Lack of market power
- Interest sensitivity
- Trade sensitivity
- Asset fixity and excess capacity
Inelastic Demand

An increase in supply causes price to fall more sharply than the quantity clearing the market.

Environmental Programs

- Conservation Reserve Program
- Wetland Reserve Program
- Endangered Species Act
- Numerous incentives for conservation
- Tie govt. payments to environmental plan
- Purchase of development rights

Subsidize Ethanol Production

Subsidy - payments to producers or consumers designed to encourage an increase in output

Demand for ethanol

Use to have a $0.51 subsidy on ethanol production per gallon – eliminated in 2012

Impact on market
- Decrease in price
- Increase in quantity
- Government payments
**Subsidize Ethanol Production – Corn Market**

Subsidy in the ethanol leads to increase demand for corn

Leads to increase in \( P \) and \( Q \)

**Its Not that Simple**

Corn Market Subsidy

Ethanol Market

**Govt. Intervention**

Free market equilibrium occurs at point \( E \). Let's assume that \( P^* \) is below a politically acceptable price, and that the price desired by policymakers is \( P_L \).

How can we support price to farmers?
- Loan rate
- Acreage restriction
- Deficiency Payments
- Demand Enhancement
### CCC Loan Rate

Free market equilibrium \( P^*Q^* \)

- **Loan Rate at** \( P_L \)
- Impact on market
  - Increase in price
  - Increase in \( Q_S \)
  - Decrease in \( Q_D \)
- Government must buy and store the surplus \( Q_S - Q_D \)

### Loan Rate - Welfare Effects

- **CS before** = 1 + 2 + 3
- **CS after** = 1
  - Net loss = 2 + 3
- **PS before** = 5 + 6
- **PS after** = 5 + 6 + 2 + 3 + 4
  - Net gain = 2 + 3 + 4
- Govt. cost = storage costs
  + \((Q_S - Q_D) \times P_L\)

### Acreage Restrictions

- Still want price \( P_L \) but do not want to store / buy the crop
- Restrict acreage changes supply to \( S_R \)
- Market equilibrium \( S_R = D \) at \( P_L \) & \( Q_D \)
- Decrease in \( Q \) and increase in \( P \)
Importantly, the set-aside approach does not encourage production of quantity $Q_S$ as the CCC loan rate approach did.

Currently, no set aside program except the CRP.

Welfare - Acreage Restrictions

CS before = 1 + 2 + 3 + 4
CS after = 1
Net loss = 2 + 3 + 4

PS before = 5 + 6 + 7
PS after = 5 + 2
Net gain = 2 - 6 - 7

Society
Net loss = 7 + 6 + 3 + 4
Shift of 2 from CS to PS

Deficiency Payments

The deficiency payment is equal to quantity $Q_d$ multiplied by the difference between the announced target price and either the loan rate or market price, which ever is higher.

Idea to support income but let the market price fluctuate!
Deficiency (Countercyclical) Payments

The deficiency payment $P_L > P^*$.

$DP = (P_T - P_L) \times Q^*$

The deficiency payment $P^* > P_L$.

$DP = (P_T - P^*) \times Q^*$

Deficiency Payments - Example

The deficiency payment $DP = (P_T - P_L) \times Q^*$

$(4 - 3) \times 1000 = 1 \times 1000 = 1000$

The deficiency payment $DP = (P_T - P^*) \times Q^*$

$(4 - 2.5) \times 1000 = 1.5 \times 1000 = 1500$

Domestic Demand Expansion

Let's assume that the free market conditions result in a market equilibrium price of $P^*$ and quantity $Q^*$.

Policies designed to promote research that would enhance value added demand for farm products would shift the demand curve out to the right.

This would increase price to $P_E$ and quantity to $Q_E$. 
**Domestic Demand Expansion**

CS before = $1 + 3$
CS after = $1 + 2$
Net gain = $2 - 3$

PS before = 5
PS after = $5 + 3 + 4$
Net gain = $3 + 4$

Society Net gain = $2 + 4$ – program costs
Shift of 3 from CS to PS

**Export Demand Expansion**

Let's assume that the free market conditions result in a market equilibrium price of $P^*$ and quantity $Q^*$.

By enhancing export demand through subsidies to client nations, the government can shift the demand curve out to $D_{EX}$ beginning at $E_0$.

This would increase price to $P_{EX}$ and quantity to $Q_{EX}$.

**Export Demand Expansion**

Domestic
CS before = $1 + 3 + 6$
CS after = 1

Foreign
CS after = 2

Domestic
PS before = $5 + 7$
PS after = $3 + 4 + 5 + 6 + 7$

Govt. program costs
Other Govt. Intervention – Ag.

- Ethanol mandate in gasoline – demand enhancement
- Consumer issues
  - Nutrition and health
  - Food safety issues
  - Food Stamps
  - School Lunch
  - WIC
- Rural Communities
- See book

Summary

- USDA has been involved in providing environmental services from agricultural land
- USDA has tried to support prices and incomes by acquiring/storing excess supply at desired support price
- USDA supply side approaches to supporting farm prices and incomes included set-aside rates and deficiency payments
- Demand side approaches designed to promote domestic and/or export demand