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Budget Pressure and Farm Programs

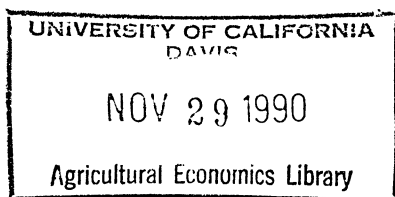
by

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Budget Pressure and Farm Programs

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Abstract

Deficits and changes in budget institutions put political pressure on farm programs. This paper discusses changes in budget institutions and develops a model of budget pressure using a Stone Geary political preference function. The results suggest that budget pressure may bias policy decisions toward supply controls.

Budget Pressure and Farm Programs

Budget Institutions and the Political Economy of Agriculture

Steady growth in federal revenues and a political consensus favoring a more extensive role for the Federal government coincided with the post WWII period of "classical" budgeting, best described by Aaron Wildavsky's incremental budgeting model. Decision makers took last year's inflation adjusted base as given and allocated the incremental revenues resulting from economic growth. Incremental budgeting was a consensual positive sum game and since most claimants received part of the annual increment, the process created a superficial sense of equity. In this low stress environment, the decentralized budget institutions of the 1950's and 1960's worked well. However, by the 1970's a slowdown in revenue growth, a rapid increase in existing claims on the budget [Kettl] and the loss of consensus on the extent of federal intervention, led to the advent of what Robert Behn calls "cutback" budgeting and to a demand for institutional change. Because budget institutions face strong vested interests opposed to any cuts in their programs, "cutback" budgeting creates a confrontational environment requiring allocative decisions on the entire budget and more centralized institutions. Furthermore, the growth in existing claims, largely due to the rise of entitlements, led not only to faster growth in spending but also to a loss of institutional control over the budget. Entitlement programs, like food stamps and farm price and income supports, are independent of the annual appropriations process and decentralized budget institutions lacked mechanisms to control them. Faced with rising deficits it could not control, Congress began to change budget institutions.

The 1974 Budget Act and Gramm-Rudman-Hollings

The Congressional Budget and Impoundment Control Act of 1974, was an attempt to increase Congressional control over the budget, and marked a turning point for budget institutions. While the 1974 Budget Act may not have increased Congressional control [Wildavsky], it did mandate a more formal budget process and created the House and Senate Budget Committees and the Congressional Budget Office (CBO) to carry out the process. The heart of the new budget process was the concurrent budget resolution (the Congress' central budget document) which sets totals for spending, revenues, and the deficit. The resolution assigns spending targets to appropriations committees and includes reconciliation instructions to each authorizing committee (e.g. House and Senate Agriculture Committees) specifying the dollar amount of budget, entitlement and borrowing authority available for the fiscal year. More importantly in an era of

budget stringency, the reconciliation instructions provide a means of controlling entitlement programs by specifying the total reductions in spending required of each authorizing committee. The 1974 Budget Act also began to shift power from the authorizing and appropriations committees to the budget committees. Agencies and interest groups now had to keep an eye on the budget committees and the budget process.

The institutional and political changes which began with the 1974 Budget Act continued with Gramm-Rudman-Hollings (GRH), the Balanced Budget and Emergency Deficit Control Act of 1985, which amended the 1974 Budget Act. The object of GRH was to balance the budget by making budgeting a declining zero sum game. The law set deficit targets which declined to zero by 1991 (extended to 1993 in the 1987 amendments to GRH). These targets were to be enforced by the threat of sequestration, across-the-board spending cuts. Prospective targets and creative accounting have consistently allowed above-target-deficits but GRH has still had a major affect on the budget politics and institutions. First GRH reestablishes the balanced budget, rather than the "full employment" budget as a policy goal. Second, the threat of sequester has changed the politics of arriving at a consensus budget, a majority must now feel that they are better off with the budget than with a sequester, otherwise there will be little incentive to compromise. Third, GRH introduces opportunity cost to the budget [Wildavsky]. As amended by GRH, the 1974 Budget Act requires that once the Budget Resolution is approved, any legislation which raises spending above the budget resolution is subject to a point of order (a point of order must be waived before Congress can take further action on a bill). Because GRH requires three fifths, rather than a simple majority to waive the point of order, passing legislation which increases spending without offsets is difficult.

The Office of Management and Budget

The stresses of "cutback" budgeting have led to less visible but equally important changes in executive branch budget institutions and the role of the Office of Management and Budget (OMB). Since its inception as the Bureau of the Budget in 1921, OMB has been responsible for assembling the President's budget request. In the days of incremental budgeting, OMB's role generally ended with the delivery of the President's budget to Congress. However, as the total budget has become more important than the sum of its parts, the need for centralization in the Executive branch's budget process and OMB's power have increased. Under David Stockman, OMB began to assume a much more active policy role, proposing radical changes in government programs and negotiating with Congress [Johnson].

Agricultural Policy and the Budget

Changes in budget institutions during the 1970's and 1980's have affected the political

economy of agriculture by introducing formal budget constraints (budget resolutions, reconciliation instructions, and offsets) and by giving the budget committees, CBO, and OMB a large stake in agricultural policy. As spending on price and income support programs has gotten increasingly out of control, these organizations have increased their analytical capability, diminishing the ability of the iron triangle (the agriculture committees, USDA, and interest groups) to control the information injected into the decision making process.

OMB's stake in agricultural policy influences not only the administration's legislative agenda but also administrative agricultural program decisions. OMB has always had an interest in program decisions affecting the budget but institutional changes in the budget process have raised the stakes considerably. The establishment of OMB as the official "scorekeeper" for Gramm-Rudman-Hollings¹ provided an important tactical weapon in budget negotiations with Congress-- OMB's accounting determines whether or not there will be a sequester. Agricultural program decisions, like Acreage Reduction Program (ARP) levels which affect total spending on farm programs, or advance deficiency payments, which affect the timing of federal outlays, can lead to billion dollar changes in estimated spending for a fiscal year. When projected deficits are close to the GRH target, a simple administrative decision can trigger or avoid sequestration. The stakes become so high that agricultural policy often takes a back seat to budget policy.

The first clash between the emerging Congressional budget institutions and agricultural programs came in 1977, when spending estimates for the 1977 Food and Agriculture Act exceeded the limits in the budget resolution. This battle was decided in favor of farm programs when, over Senator Muskie's (D, ME) plea to preserve the integrity of the budget process, Congress amended the budget resolution to accommodate the farm bill [Penn]. The 1981 Agriculture and Food Act was the first farm bill to be heavily influenced by "cutback" budgeting and changes in budget institutions [Bowers, Rasmussen, and Baker]. In response to budget pressure the 1981 Act replaced normal cropland acreage, which established a "whole farm" acreage base, with crop specific acreage bases. Because the normal crop acreage concept allowed farmers flexibility in their choice of crops, it made set asides less effective at controlling production, surpluses, and government costs for individual crops. The 1981 act established individual crop bases, which, in conjunction with ARP requirements for individual crops, reduced this slippage and increased budget control.

¹ GRH originally mandated that the General Accounting Office, a Congressional Agency, make the final determination on budget sequestration. However, in 1986 the Supreme Court ruled that this provision violated the separation of powers. The Balanced Budget and Emergency Deficit Control Reaffirmation Act of 1987 (PL 100-119) gave this responsibility to OMB.

In spite of tighter supply controls, the cost of price and income support programs spiraled under the 1981 act. The 1983 Payment in Kind program (PIK) attempted to control costs through a massive paid land diversion. With program costs again on the rise, the new budget institutions helped to put the brakes on the 1985 farm bill [Knutson, Penn, and Boehm]. The Food Security Act supplemented short term supply controls, the ARP and paid land diversions, with long term land retirements under the Conservation Reserve Program. The growing importance of budget constraints became even more obvious when Congress made substantial revisions (target price reductions, tighter payment limitations, the 0/92 program, and paid land diversions). to the 1985 Food Security Act in order to reduce spending on price and income support programs both as part of the two year Bipartisan Budget Agreement, negotiated with the Reagan administration in the fall of 1987 and the 1989 Budget Reconciliation Act.

The Political Economics of Budget Pressure

Policy makers faced with pressure to reduce spending on commodity price and income supports have two main options, tighten supply controls--primarily in the form of higher ARP percentages--or cut target prices. Higher ARP percentages directly reduce spending by making fewer acres eligible for deficiency payments. They also lead to indirect spending reductions by cutting supply, raising market prices, and transferring some of the cost of farm programs from the budget to consumers. Target price cuts directly reduce spending by lowering deficiency payment rates. However, because lower target prices reduce program participation and undermine the effectiveness of supply controls, their effects on program costs through supply response is unclear.

The historical evidence that the budget has had a substantial effect on agricultural policy may be compelling but it does not provide a complete framework for understanding the relationships between evolving budget institutions and agricultural policy. Recent literature on the political economy of agriculture has begun to incorporate the budgetary cost of policies. However, no existing models adequately incorporate the effects of changing budget institutions and increasing budget pressure on U.S. price and income support policy. Gardner [Gardner, 1987] develops models to determine optimal price and income supports by maximizing social welfare as a function of producer and consumer surplus. However, these models treat deficiency payments and supply controls as separate policy regimes and leave the decision between them a binary political choice. Furthermore, because Gardner sums the budgetary effects of deficiency payments together with consumer surplus in the social welfare function, his models do not incorporate the effects of budget pressure.

Reithmuller and Roe (Reithmuller and Roe) directly incorporate budgetary effects into the

government's criterion function in their model of Japanese intervention in the rice and wheat markets. Although their analysis focuses primarily on the government's response to world and domestic prices, they note that the Japanese government "attempts to lessen the drain on the treasury" by increasing wheat imports--on which it makes a profit--when it increases producer and consumer prices for wheat. The Reithmuller-Roe model suggests how budget effects might be incorporated in a model of U.S. price and income support programs, but it considers only changes in the cost of program costs and does not incorporate external budget constraints.

A recent model of the U.S. sugar program [Lopez] illustrates the difficulties of correctly specifying a commodity market model incorporating budget pressure. Like Reithmuller and Roe, Lopez included a term for budget effects in a political preference function. Lopez's empirical model used the deficit as a proxy for external budget pressure in the policy instrument equations. However, the estimated coefficients for the deficit variable had perverse signs or were not statistically significant. The perverse results are unsurprising for three reasons. First, because the U.S. is a net importer of sugar, the program has relied primarily on border measures rather than direct payments as the primary policy instrument. Second, because the deficit does not constitute a budget constraint, it is an inappropriate measure of budget pressure. Third, Lopez fails to take into account institutional and structural changes in the budget and political economy of agriculture during the time period of his analysis.

The work of Gardner, Reithmuller and Roe, and Lopez, does not explain how budgetary pressure has affected U.S. price and income support policy but their work does lay the foundation for a political-economic model incorporating budget pressure.

A Conceptual Model of Budget Pressure

The conceptual model begins with a simple static commodity market model incorporating two policy instruments, a target price (P_T) and a supply control parameter (γ). Under this policy regime the government offers all producers who reduce their production by a fixed percent $(1-\gamma)$ the target price on all production.

The mathematical model consists of price dependant demand (1) and supply (2) equations, where the producer price (P_p) is the maximum of consumer and target prices. The supply control parameter is introduced in the equilibrium condition (3), where quantity demanded (Q_d) equals the producer's desired supply, (Q_s) multiplied by the supply control parameter. The budgetary cost of the programs (B) (4) is the difference between the target price and the market price multiplied by the market clearing quantity, (Q^*). When the consumer price rises above the target price, program costs are assumed to be zero. Political preferences (P) (8) are a function of producer

surplus, consumer surplus, and budgetary cost. The effect of budget pressure is determined by the weight policy makers assign to budgetary cost in the preference function.

Budget Pressure Model

- 1.) Demand: $P_d = D(Q_d)$
- 2.) Supply: $P_p = S(Q_s)$
- 3.) Equilibrium: $Q_d = \gamma(Q_s) = Q^*$
- 4.) Budget: $B = (P_T - P_d)Q^*$
- 5.) Producer Surplus: $PS = P_p Q^* - \int_0^{Q^*} S(Q_s) dQ_s$
- 6.) Consumer Surplus: $CS = \int_0^{Q^*} D(Q_d) dQ_d$
- 7.) Political Preference: $P = P(PS, CS, B)$

Where:

P_d = market price

P_p = producer price, the maximum of P_T and P_d

Q_d = Quantity Demanded

Q_s = Quantity Supplied

γ = supply control parameter

B = budgetary cost of deficiency payments

Supply Control Decision

Given a fixed target price, maximize $P(PS, CS, B)$ with respect to:

$$9.) \frac{\partial P}{\partial \gamma} = \frac{\partial P}{\partial PS} \frac{\partial PS}{\partial \gamma} + \frac{\partial P}{\partial CS} \frac{\partial CS}{\partial \gamma} + \frac{\partial P}{\partial B} \frac{\partial B}{\partial \gamma}$$

$$\text{Let } \frac{\partial P}{\partial PS} = W_p, \quad \frac{\partial P}{\partial CS} = W_c, \quad \frac{\partial P}{\partial B} = W_B$$

Maximization conditions, assuming that consumer surplus is not considered:

$$10.) - \frac{W_B}{W_p} = \frac{\partial PS / \partial \gamma}{\partial B / \partial \gamma}$$

Consider a policy decision on the optimal level of supply control for a given target price. First assume that policy makers will consider only changes in producer surplus and the budget, ignoring the effect of policy changes on consumers. The maximization conditions for the political preference function (10) equate the negative ratio of weights on the budget² and producer surplus to the rate of change in the transformation curve describing the relationship between the budget and producer surplus. Increases in the weight policy makers attach to the budget, W_B , will increase the optimal level of supply control.

However, under current institutional arrangements, budget pressure tends to be felt in the form of constraints rather than as marginal changes in the weight on the budget argument in a political preference function. Tighter constraints do not mean that policy makers change the way in which they value farmers versus the deficit and consumers. One alternative for capturing the effects of budget constraints on commodity program decisions would be to maximize political preferences subject to a budget constraint. However, budget constraints are elastic, not binding, (Gardner, 1989) and this study uses an alternative approach by incorporating thresholds directly in the preference function.

Political decisions on commodity price and income support programs are shaped by politicians' perceptions of what alternatives are politically feasible. Political feasibility is contagious, spread by lobbyists, staff, and legislators with a large stake in the price and income support programs. Within this pragmatic environment, threshold levels of particular indicators take on a life of their own. For example, farm price and income support programs that cost over \$12 billion annually may be viewed as infeasible. Changes in thresholds do not necessarily imply changes in political values or changes in political preference function weights. To explore the affects of political thresholds on policy making behavior, a Stone-Geary preference function,

²The ratio is a positive number since the numerator, W_B , is a negative number when policy maker utility declines with larger budgets.

$P = \sum B_i \log(X_i - T_i)$, [Phlips] with minimum thresholds (T_i) for producer and consumer surplus and a maximum threshold for the budget³ was then introduced into a static computer simulation model of the U.S. wheat market.

A Wheat Market Simulation

The model incorporated linear demand and supply curves to approximate conditions in the wheat market during crop year 1988, with demand and supply elasticities of -.5 and .3 respectively, a \$3.75 per bushel market price, and total production of 1.8 billion bushels. The target price was set at \$4.10 and the supply control parameter at .75 with a 30 percent "slippage" factor to approximate a 25 percent ARP. The initial model solution generated a \$7.1 billion producer surplus, a \$6.8 billion consumer surplus, and program costs of \$630 million. The model, was then solved over a range of target prices (0 to \$5.00 per bushel) and ARPs (0 to 45 percent) using TK-Solver Plus software. Values for the political preference function were then calculated over a range of thresholds (T_i) for producer surplus, consumer surplus, and the budget using equal preference function weights (B_i) of .3333. The levels of ARP and target price maximizing the preference function at various threshold levels (tables 1 and 2) were then extracted from the results of this sensitivity analysis.

Table 1 summarizes the effect of increasing budget pressure (lower thresholds) at three different producer surplus thresholds, in the absence of any threshold for consumer surplus. Pure supply control regimes, where the market price is below the target price, tend to dominate the model's policy choice in the absence of consumer pressure. Increased budget pressure (lower thresholds) leads to target price reductions or increased ARP levels sufficient to eliminate program costs. Increased producer pressure (higher thresholds) leads to higher target prices and higher ARP levels. In other words, when consumers don't matter very much, increased budget pressure

³ The budget threshold relationship is specified as $T_i - X_i$, $T_i > 0$ and $0 < X_i < T_i$, since increased spending is assumed to reduce policy maker utility. This allows the budget variable to be expressed as a positive number.

leads policy makers to shift the cost of farm programs from the budget to consumers.

Table 1. The Effect of Budget and Producer Pressure on Target Prices and Supply Control¹

	Producer Surplus Threshold		
	\$0 bil.	\$3 bil.	\$6 bil.
Budget Threshold			
\$10 bil.			
ARP	15 %	30 %	30 %
Target Price	\$3.25 ²	\$4.50	\$5.00
\$5 bil.			
ARP	15 %	30 %	40 %
Target Price	\$3.25 ²	\$4.00 ²	\$5.00
\$1 bil.			
ARP	15 %	30 %	45 %
Target Price	\$3.25 ²	\$4.00 ²	\$4.50 ²

¹Consumer Surplus Threshold = 0

²A pure supply control option, ie $P_d > P_T$.

However, once consumer pressure is introduced (table 2), increased budget pressure leads to greater target price reductions and lower ARP levels. For example, at a consumer surplus threshold of \$6 billion and a producer surplus threshold of \$6 billion, the ARP increased slightly (from 15 to 20 percent) as the budget threshold was lowered from \$6 billion to \$.5 billion. The target price declined substantially (from 4.50 to \$3.75). In contrast, when consumer pressure was not a factor (consumer surplus threshold = 0) the same change in budget pressure led to a much larger increase in the ARP (from 30 to 45 percent) and a smaller the target price reduction (from \$5.00 to \$4.50).

Table 2. The Effect of Budget and Consumer Pressure on Target Prices and Supply Control¹

	Consumer Surplus Threshold		
	\$0 bil.	\$3 bil.	\$6 bil.
Budget Threshold			
\$6 bil.			
ARP	30 %	30 %	15 %
Target Price	\$5.00	\$5.00	\$4.50
\$5 bil.			
ARP	40 %	35 %	20 %
Target Price	\$5.00	\$4.75	\$4.25
\$1 bil.			
ARP	45 %	40 %	20 %
Target Price	\$4.50 ²	\$4.25 ²	\$3.75

¹Producer Surplus Threshold = \$6 billion.

²A pure supply control option, ie $P_d > P_T$.

Conclusions and Implications

Institutional changes in the budget process have increased the pressure on policy makers to control and reduce spending on farm programs. While historical evidence shows that budget pressure has affected policy choices it is not clear that it has reduced government intervention in the

sector. The simulation results presented above suggest that in the absence of consumer pressure, budget pressure is likely to lead to tighter supply controls which shift the burden of farm programs from the budget to consumers. If conventional wisdom that consumers exert little pressure on policy makers is correct, these results suggest that budget pressure leads to a political preference for tighter supply controls over target price cuts. The history of legislative and administrative action during the 1980's suggests that this may indeed be the case.

The simulation results presented in this paper do not necessarily predict behavior in the real political world but they do suggest empirically testable hypotheses about policy choices in response to producer, consumer, and budget pressure. The results are also limited by restricting policy choices to combinations of existing policy instruments, supply controls and target prices. However, just as rising deficits created a demand for changes in budget institutions, budget pressure is creating a demand for deeper institutional changes in farm programs. For example, the high cost of farm programs initially helped to create broad political support for the U.S. GATT proposal.

Policy makers do respond to budget pressure but the result is not necessarily more economically efficient policies. In order to better understand the long run implications of different policy alternatives, we need to understand not only their economic consequences but also the political forces which influence policy choices.

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