

# PRICE STABILIZATION FUNDS

Peter Bowbrick

## **ABSTRACT**

It is often suggested that an exporting country should set up a price stabilization fund to insulate farmers from fluctuations in the world market price, by collecting a proportion of farmers' revenue when prices are high and paying it out when prices are low. Sometimes the funds are established and they operate with limited success.

The objectives of the funds are seldom clearly defined. Much of the rationale vanishes if producers can store welfare from one period to another, for instance by savings, investment, store or the purchase of durable consumer goods. The system is not attractive if the fund will pay out less in real terms than it takes in, because of limited investment opportunities, high risk investments, mismanagement, corruption, excessive administration costs or a change in government policy. Considerations of producer and consumer surplus are, rightly, ignored by governments in making decisions on this.

The switch to stable prices will have effects on production and investment which may be unfavourable.

The price stabilization may stabilize or destabilize farm income and national export earnings. Often it implies little or no change in the level of national exports or their distribution over time; there is just a transfer of the instability from one sector to another, possibly a sector less able to bear the risk and instability.

## **INTRODUCTION**

A typical price stabilization fund is set up for an export crop. In years when the world price is high, some of the returns are paid into the fund; in years when it is low, the accumulated revenues are used to bring up the price. There are many variations on this basic model. Some of the funds soon collapse, while others go on for years, surviving but not necessarily achieving their objectives.

The objectives of the fund are usually obscure, sometimes deliberately so. For example, farmers press for stabilization without making it too obvious that to them stabilization means a lower limit to prices rather than an upper limit: in other words, they want a higher average price. Consumers think of price stabilization as imposing minimum prices rather than both maxima and minima. It is often assumed without discussion or evidence that price stabilization benefits the farmer and is beneficial to the economy. This paper shows that these assumptions are not always reasonable, that the aims are sometimes contradictory, and that the aims are often not compatible with a stabilization scheme.

Initially, it is assumed that output in country C is constant, but world output (or demand) fluctuates, with consequent price fluctuations. World demand is perfectly price elastic with respect to production by C. A fund is set up into which all returns above a certain price, P1, are paid. If the price falls below P2 the money from the fund is used to bring the return up to P2. For most of this analysis, it is easier to assume that P1 and P2

are the same. It is assumed that internal marketing is cost free. This analysis ignores short-term price fluctuations, those that occur within a season. We conveniently assume that the value of the currency remains constant. It may be argued though, that the changes in farm income and export income due to world price changes, and changes in output, are sufficient to change the marginal utility of money to the farmer and the marginal utility of foreign exchange to the nation.

At first sight, farmers will be indifferent between a fluctuating income and a stable income as long as their average income in real terms is the same. However, welfare economists can demonstrate that welfare is greater under stability, provided that linear supply curves are assumed, and the other assumptions are sufficiently abstracted from the real world. They do accept though that their conclusions are not at all robust and vary greatly with changes in assumptions.

This is arguing about how many angels can sit on a pin, and I fully support Cochrane's (1980) attack on this research programme for its poor scientific method and his conclusion "that welfare analysis based on the concepts of consumer and producer surplus has not in the past made, and will not in the future make, any recognisable contribution to the making of decisions by the United States, other developed countries, the less developed nations or the international agencies, either to initiate commodity stabilization programs or reject them". I propose, therefore, to ignore this aspect.

## ***TRANSFER OF WELFARE OVER TIME***

To a large extent, any arguments for price stabilization must depend on the assumption that the fund can effectively store value over time while the farmer cannot and does not. Where stabilization cannot be shown to be desirable for other reasons, it may be sufficient to show that the fund stores value adequately, even if not enough to cover inflation and time preference, and that the farmer cannot perform as well.

### **Welfare transfer by the farmer**

In many countries, the lack of savings banks and financial institutions in the rural areas means that farmers cannot put their money into interest-bearing deposits and must resort to burying their money. They gain no interest, the money loses in purchasing power, and they face the risk that the white ants will get at it. In other countries, the institutions are there, but the rate of interest is well below the inflation rate.

In some countries, notably in the Far East, farmers with surplus cash can make high profits as moneylenders, trading on the fact that they are better informed about the credit-worthiness of their fellows than the credit organizations are. In Africa, generally, the opposite is the case: if anything farmers will borrow at times of low prices from credit organizations, paying an interest well below the rate of inflation, and will repay at periods of high prices. They stabilize their income and have a higher real income (an invisible subsidy to the agricultural sector).

Farmers can invest in capital such as trees, ploughs and machinery or in inputs such as fertilizer. In this way, they effectively spread their income over a longer period.

Their return from this investment is likely to be substantially higher than the return the fund will get from its investments.

Similarly, investment in durable consumption goods will enable them to stabilize their welfare over a period, even if their income fluctuates. A bicycle, a radio or a corrugated iron roof for the house produces utility over several years. It can be argued in this respect that the income fluctuations benefit farmers: most people tend to spend nearly all of a stable income and it is commonly assumed that farmers are risk averse. This is obviously so with subsistence crops and less obviously so with the main cash crops, but often farmers are willing to gamble with a minor crop, perhaps because they like gambling, perhaps because of the higher utility of windfall earnings, and perhaps because the high risk crops have a much higher expected project. In the same way, it is common for people to take the apparently irrational step of buying both insurance and lottery tickets.

A common argument is that administrators know better than poor ignorant peasants what prices are going to be in the future so they should force them to act in the way that is for their own good. This argument is seldom heard from economists who realize the margin of error in their price predictions. Even if the administrators did know better, a five-minute radio broadcast on market conditions would be more to the point than setting up a fund.

Even more paternalistic is the argument that the peasants are too feckless to save, and will just spend anything they earn immediately. This argument is usually made by a man who is overdrawn at the end of every month, about farmers who have to plan their food production and consumption a year in advance with the prospect of hunger and possibly starvation if they make a mistake.

It is also presumptuous to tell peasants that their scale of time preferences is wrong: it could easily be an optimal decision to spend income as soon as possible; in our inflationary economy, plagued with shortages, this could well be so. This strategy also removes many risks.

With some crops, farmers and wholesalers can stabilize incomes by storing from one period to the next. A price stabilization fund would make this unprofitable. The amount being exported and foreign exchange earnings would fluctuate more, which would not be in the national interest, while farmers' incomes might be no more stable.

We may ignore hedging as being irrelevant to a developing country.

## **The Fund**

An assumption in much of the literature is that the fund will provide, at no cost, a perfect transfer of welfare from one period to the next. This has not been found to be the case in the past.

Under some systems, the cost of administering the fund is negligible — the marketing board transfers some money to government one year, and the government transfers it back when prices are low. These systems have compensatory disadvantages though. First, there is no visible evidence that a fund exists, no offices, and no physical investments; so farmers may doubt if it is really there. Experience has shown that in fact such funds are often not there when needed; government has a more urgent need for the money when prices are low.

In a one-crop economy, government is likely to need money desperately just when prices are low and it has to pay out.

It is most unlikely that such a government-operated fund would pay out sufficient to cover inflation, with an additional amount for interest. It is more likely that they would pay an amount based on the bank rate, or even that they would forget about interest.

Even if the decision-makers and the people designing the fund are determined that it will work strictly according to the principles laid down, there are likely to be a different set of decision makers facing a very different set of problems when the time comes to pay out.

Where the fund is an independent investment organization, it will have a large administrative unit, a large investment unit and an accounting unit, and it is likely to have invested in prestige office buildings. The authority has a vested interest in its own existence and is unlikely to liquidate itself to pay the farmers, however great the need.

In developing countries with no money market, there is a shortage of suitable investment opportunities.

The fund can buy low-yielding Government securities, but there are very few low-risk shares in established firms. A large stabilization fund in a one-crop economy could well have 20 per cent or more of the equity capital of locally-owned private corporations. If it were to put these shares on the market all at once, to pay farmers in a low-price year, there would be chaos. Instead, the fund might be forced to invest in property, factories, or other highly speculative investments. Again, it would be very difficult to cash in on these investments when needed, and the money would have to be borrowed. The macro-economic effect of cashing in so many shares at once must also be considered.

In some countries, a large proportion of the fund has disappeared through excessive administrative costs, losses in a high-risk environment, or corruption.

It should be noted that, especially in a single-crop economy, the period of low prices would be a period of national shortage of foreign exchange. Farmers will have their incomes boosted by the fund at the same time as imports are reduced, so prices will rise, reducing the purchasing power of the extra payment to farmers.

## **Failure of the Fund**

There are several reasons why the fund may run out of money. If price changes are random, the fund may pay out year after year, because of an unpredictable run of bad years. If the prices are cyclical, the fund will fail if it starts operation after prices have started their downward swing. Sometimes the idea of a fund is raised when prices are at a peak, there is a commission of inquiry, and then legislation is enacted, by which time prices are well down, and the fund does not have time to accumulate money before it must start paying out. The fund will also collapse if the downswing lasts longer than expected, or if the world price trend is overestimated.

The fund is inherently unstable. It insures against something that is certain to happen, a price fall, and the only question is how frequently low prices will occur. Because only one commodity is covered there is none of the risk sharing that makes insurance profitable.

If the farmers are given plenty of warning that the fund is running out of money so they will have to take the market price for a year or two until more revenue is earned, then they may accept the situation, especially if the fund has performed well for a long

time, If, however, the money runs out after two or three years, if the farmers are given no warning and if there is a suspicion of corruption or maladministration, farmers are not likely to accept the continuation or revival of the fund. Even if there is a new fund or the fund is revived, the producers' reactions to its announced prices will be different.

One other response to the failure of the fund is that the Government will pay, as a subsidy or as a long-term loan, the money necessary to keep the price stable. Often this means a subsidy which is contrary to Government policy.

Farmers' belief in the adequacy of the fund affects their welfare. Farmers who believe in the fund and are proved correct (or believe that they are proved correct) get the satisfaction of:

- (a) expecting to get a stable income in the future,
- (b) the satisfaction of actually getting it, and
- (c) the satisfaction of being proved right.

The farmers who did not believe in the fund and are proved right;

- (a) suffer in anticipation,
- (b) suffer the actual welfare loss when the fund fails and
- (c) get the sour satisfaction of being proved right.

There are many combinations, and it would be rash to attempt to rank them.

## ***EFFECT ON PRODUCTION***

So far, it has been assumed that output in country C is constant from year to year and there are no fluctuations due to the weather or farmers' reactions to price. In this section, the effect of price on output is considered. We continue to assume that world market price is not related to output by country C, so cobweb effects can be ignored. The question of whether it is desirable to stabilize production is left until later.

The probable impact of price stabilization on output depends on how farmers make their decisions. If they assume that this year's price will continue to hold next year then price stabilization expected to result in stable production intentions.

If, however, they base their decision on a weighted average of the prices for the last three or four years, as seems likely, there is a considerable degree of stabilization already, and the impact of the fund will be limited. Indeed, it is only with a long-term cyclical crop, at the peak and trough, that the lagged price will be very different from the fund's estimate of trend prices (which itself may be wrong).

A case can be made for stabilization, sometimes a very strong case, when there is no risk, when for example there is perfect knowledge of future prices. Most of the arguments are the macro-economic arguments that will be discussed below. Arguments on producer's surplus are, as mentioned above, suspect. With perfect knowledge, communicated to the farmer, one can get the same effect from credit, storage, transfer of welfare over time or investment of surpluses as from price stabilization. The effect of price stabilization on production costs is not obvious. The farmer can reduce losses by switching to higher price crops at low price periods (costs to the farmer of unused capacity must be considered with costs to the nation of under-production at high price periods. Some costs will arise if there is no alternative crop.)

The costs of risk are those arising from the fact that the extent and timing of price fluctuations, and of weather and disease-caused fluctuations of the individual farmer are not known in advance. These reduce farmers' credit worthiness; they mean that they have to hold cash reserves which they could otherwise invest. They mean that farmers face a greater risk of bankruptcy — more risk the more they depend on purchased inputs.

Investment must be altered by the fact that there is a constant price rather than a price that fluctuates around the same level. Farmers can be expected to prefer a risk-free stable price and to increase their optimum investment level accordingly. On the other hand, they are more likely to invest at high prices, because the high prices cause than to have unduly optimistic expectations (which partly or wholly compensate for unduly pessimistic expectations when prices are low). It is only when prices are high that farmers have any spare cash for investment (the position is altered when several cash crops are taken into account.) One can imagine the situation where investment takes place at high prices but not at the stable price. Indeed pressure for stabilization often arises when farmers plant a perennial crop only at high prices, causing cycles. The opposite case may be stronger; farmers strongly discount distant income and at low prices are likely to disinvest, grabbing orchards and plantations.

Replacing this is expensive and takes time. A stable price leads to a higher and better investment pattern.

It cannot be assumed either that all farmers react in the same way to price. A degree of output stabilization is brought about by the fact that shrewd farmers plant when prices are low, expecting that most farmers will do the opposite.

If one state stabilizes prices and another does not, or even if they adopt different policies, smuggling becomes big business. This can be observed in the EU in spite of rather small price differences. This destabilizes incomes but increases them, at the expense of the fund.

This discussion has shown that price stabilization can have an effect on production. It can result in a more stable output, and even a larger average output. It could however, have the opposite effect of reducing investment. The case on which much of the theory is based, that of the farmer who expects that all future prices will be the same as those of the current year, is a rarity. It is commoner for a farmer to assume that a future price will be weighted average of past real prices. The output stabilizing effect is likely to be considerably less than at first seems probable.

## **WORLD PRICES**

It was assumed initially that country output remains constant. We now assume that planned production remains constant, but that there are random changes in output brought about by weather and disease. It is still assumed that world prices are not affected by changes in country C's output, but they are affected by changes in world output, which may be caused by random climatic effects or by the aggregate response to price,

Country C's output may be positively correlated with total world production because of climate. The effect is then rather as though Country C's output affected world prices except that the changes in production are random and unplanned and so can be ignored, (though they do have some effect, in so far as the stable price means more or less total production). When the effect is similar to an inelastic demand, a slightly higher output occurring when there is a much lower price, or when there is a positive correlation, a high price occurring with a high output, the nation's income from this crop fluctuates considerably and so does the farmers'. Stabilization makes farm income more stable, but the fluctuation in national exports is unchanged, so other sectors have to produce the resources for the stabilization. It is possible in some economies that the peasant farming sector is better fitted to cope with these income fluctuations than is a new small and delicate industrial sector.

When the relationship is similar to that which would occur with a unit elasticity of demand or an elastic demand, then price stabilization would destabilize farm income. (In fact, some stabilization schemes, take output into account as well as price, (Quiggin & Anderson, 1979). Since national exports fluctuate at the same rate as before, the agricultural sector is taking increased income fluctuations to damp down the effect on other sectors,

It is rather dangerous to assume that these relationships will hold in the future if it is not clear why they held in the past. If it can be pinned down to weather, well and good.

With a predictable price and a short-term crop, stabilization seems indefensible. There is the case observed in Australia in the early 1950s, where the price of wheat was stabilised and held low over a five year period, when the combination of restricted world supply and high world demand meant high world prices. Stable prices in Australia meant a stable Australian output over a period when higher output would have benefited the farmers, the nation and world consumers. When, later, prices fell, the subsidized wheat was sold at a loss (Quiggin and Anderson, 1979)

There was a serious misallocation of resources. The question of income stabilization does not arise; farmers knew what to expect and could have moved to alternative crops, accepting a small loss in income, or not producing, and so saving on inputs, rather than producing the crop at a loss.

When it is not possible to forecast price in this way the situation is similar to the case of variations being due to random fluctuations, as discussed above.

With a long-run crop, production is fixed three or four years in advance, and no great change can be expected in less than, say five years, unless there is large scale grubbing. The trend can be fairly accurately predicted from known plantings. Here stabilization does not affect short-term production. National export earnings continue to fluctuate in the same way in the short run, whether or not there is stabilization.

Long-run stabilization may be acceptable when short run stabilization is not, because farmers base their investment decisions on short-term information.

For the long run, stabilization is important in levelling out the production cycle so that production is no longer correlated with world output. This will mean that national exports depend entirely on prices. This might, or might not, reduce the fluctuations in the value of exports, depending on how much of the previous fluctuations were due to price fluctuations and how much to output fluctuations. If, previously, output of country C was positively correlated with world price, the new policy will stabilize national export earnings but it will also reduce them. If, previously, the correlation was such that a slightly higher level of Country C's output was associated with a much lower level of price, then the more stable output will mean a more stable export, and more stable earnings for the farmer in the long run. If, previously, the correlation was such that a much higher level of country C's output was associated with a slightly lower level of price, then the stable output will result in lower average export earnings and more variable export earnings, and the effect on farmers will be similar. Conceivably the fund could pay prices that are high when output is high in order to reverse the cycle so the nation has high exports when the world price is high, which increases exports and income but also decreases income stability.

## **Conclusion**

It must be concluded that the facile recommendations that there should be stabilization schemes to stabilize farm incomes are dangerous. The objectives of such funds are seldom made clear.

Much of their rationale vanishes if, as is nearly always the case, producers can store welfare from one period to another, by saving, by investment, by storage, of output or purchased goods or by the purchase of durable consumer goods. It vanishes too, if there is reason to believe that the fund will not successfully store value over time.

It is by no means universally true that the price stabilization will stabilize incomes. The effect on the national economy may also be unacceptable

This analysis is not all embracing and there are still a lot of gaps. Future work should take into account what happens when country C's output affects world price, the possibility of a home market, and the effect on consumers, the effect of the fixed element of production and marketing costs and so on. The analysis should concentrate on specific crops; generalizations are dangerous.

## **References**

Cochrane, W.W. (1980), "Some nonconformist thoughts on welfare economics and commodity stabilization policy" **American Journal of Agricultural Economics**, pp 508-511

Quiggin, J.C. and Anderson J.R. (1979), "Stabilization and risk reduction in Australian Agriculture" **Australian Journal of Agricultural Economics**, 23(3) 1979, 191—206