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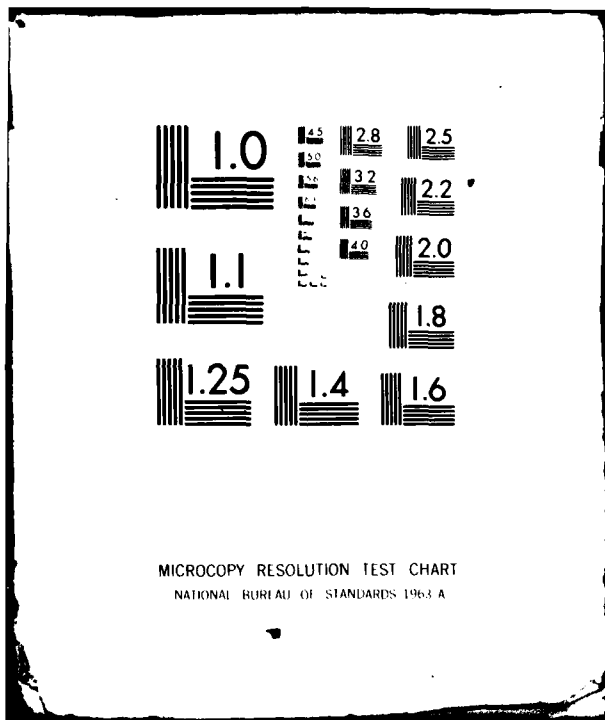
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SUBSIDIES IN LIGHT OF COMMON MARKET POLICIES

Velma Montoya/Thompson

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THE BENEFITS TO THE NETHERLANDS OF CERTAIN INTERNAL
INVESTMENT SUBSIDIES IN LIGHT OF COMMON MARKET POLICIES

Velma Montoya Thompson*

As Dutch policymakers consider alternative agricultural investment strategies, they confront special economic incentives to the Netherlands arising from membership in the European Economic Community, popularly known as the Common Market. In particular, membership subjects the Netherlands to the Common Market's agricultural price controls and its program for agricultural modernization.

This paper asks: Is it in the interest of the Netherlands people for their government to subsidize farmers' investments in more mechanized equipment? The answer presented here takes specific account of the Community's two principal agricultural policies.

This paper has two main parts. First, we consider the EEC agricultural pricing policies. Within this context, we determine whether the Dutch Government should induce Dutch agricultural producers to invest in more mechanized equipment. Our finding here is that the Dutch people as a group cannot be expected to gain from more than the amount of investment freely chosen by Dutch producers.

Second, we describe the EEC subsidy program for agricultural modernization, and determine the conditions under which the Netherlands gains by accepting the EEC investment subsidy to farmers. Under this additional complication, we find that Dutch policymakers should accept the subsidy for Dutch agricultural products with highly elastic export demands; otherwise, they should reject the subsidy.

* Staff Economist, The Rand Corporation.

The author benefited from discussions with John Dunmore and Harold McNitt of the International Economics Division of the U.S. Department of Agriculture.

I. THE INADVISABILITY OF DUTCH INVESTMENT SUBSIDIES IN THE ABSENCE OF THE EEC MODERNIZATION SUBSIDY

In our analysis, an investment in more mechanized agricultural equipment increases agricultural outputs. An investment in newer mechanized equipment uniformly lowers agricultural producers' operating, or variable, costs for any level of output. Such an investment, by lowering the marginal variable costs of production for any level of output, will induce these producers to also increase their outputs. We assume throughout that the possibly subsidized investments are used in Dutch export, rather than import-competing industries in the Netherlands.

The Case of No EEC Intervention

In a freely competitive world with no EEC intervention of any kind, with Dutch producers of agricultural products exporting to world markets and a negatively-sloped demand curve for agricultural products facing the Netherlands, the Dutch people as a group will lose from reductions in export prices owing to additional, government-induced investments. Dutch consumers do benefit somewhat from these price reductions. But Dutch agricultural producers lose the amount the domestic consumers gain plus the amount that foreign consumers gain. And, since the returns from the investments did not justify their capital costs, at least in the view of Dutch farmers, the Netherlands also can be expected to lose a little from a misdirection of its scarce investible resources.

So, in a world with no price supports and agricultural exports by the Netherlands, the Netherlands people as a group could not be expected to gain if their government encourages more than the free-market level of agricultural investment.

But agricultural prices in the Netherlands are not always free to vary. In particular, the Netherlands is part of the European Economic Community, and subject to its Common Agricultural Policy (CAP), whose major policy instrument is agricultural price controls. Current EEC members are West Germany, France, Italy, Belgium, the Netherlands, Luxemburg, Great Britain, Ireland, and Denmark. CAP pricing policies apply to every member country.

The EEC Agricultural Pricing Policies

The principal EEC agricultural pricing policy attempts to reduce the variability of Community farm prices. Every year the EEC Council of Ministers sets theoretical "target prices" for certain agricultural products and related, actual prices to help achieve these targets, "threshold prices" and minimum, "intervention prices." Below the threshold price, EEC farm prices are free to vary without the threat of competition from imports. Only when the local market price rises to its threshold price are imports from the rest of the world allowed to flow in free of an import tariff. During domestically-induced shortages within the Community, this reduces the increase in EEC prices below what it would have been if imports were kept out. When Community supplies of a particular agricultural commodity are abnormally high, local price reductions are kept small by EEC purchases at the intervention price. When the market price falls to the intervention price, below which the local market price will not be allowed to fall, an EEC agency purchases the surplus. The commodities so purchased may be later unloaded within the Community when demand exceeds supply at the support level, or they can be conveyed to other uses, or they can be unloaded on the world market, usually at a loss. The import policy affects about half of EEC agricultural imports, while commodities subject to the intervention policy include wheat, barley, rice, sugar, olive oil, oilseeds, wine, beef, skim milk powder, and butter.

The Effects of Netherlands-Induced Investments

Given this pricing policy, what is the effect of Netherlands-induced investments in Dutch agricultural export industries on the Dutch people as a group? Our answer remains unchanged from that provided above. With Dutch producers of agricultural products exporting beyond the Netherlands, the Dutch people would lose from more than the amount of investment freely chosen by Dutch farmers so long as (1) the EEC agricultural policy does not reverse the slope of the export demand curve facing the Netherlands, making it positively sloped, and (2) Dutch farmers confront rising investment costs, with agricultural prices equal to marginal costs prior to the induced investments. The imposition

of the Community policy on the Netherlands, while changing the demand conditions for Dutch agricultural exports, does not create a positively-sloped demand for Dutch exports. And even when intervention prices are insensitive to Dutch exports, as long as the second condition holds, government-induced investments will push long-run marginal costs above the prices to the Netherlands as a whole.^{1,2}

In fact, for agricultural commodities not receiving special EEC subsidies, the Dutch government neither requires nor favors farm export investments. For one important example, the recently revised Dutch investment credit law, the W.I.R. (for Wet Investeringsrekening), applies evenly across all industries. The W.I.R. provides no relative subsidy to investments in specific industries.

Some Comments Regarding the Nature of the Demand for a Member Country's Exports in the Context of the EEC Pricing Policy

In the next Section, the long-run elasticity of demand for Dutch agricultural exports arises as an important variable. Before going on, we consider the nature of the demand for agricultural exports facing a Member Country in the context of the EEC pricing policy. In particular, the presence of an intervention price does not mean that the demands for the products of the subsidized investments are virtually infinitely elastic. An infinite elasticity is a possibility only if prices were

¹ An increased output of so-called intervention products is likely to lead the EEC Council of Ministers to set succeeding intervention prices somewhat lower than otherwise. (This possibility is discussed in "The Netherlands-Agricultural Situation Report," U.S. Department of Agriculture, January 23, 1980, p. 11.) Indeed, in his 1978 report, E.N. Rolfe suggests that suspension of intervention buying is a likely measure to be proposed by the EEC Commission as a means of checking the output of certain intervention products. (E.N. Rolfe, Agriculture in the European Economic Community, p. 59.) The EEC Commission is the agency that administers and proposes new rules regarding the Community's affairs.

² In the early 1970's, the EEC introduced a system of border taxes and subsidies for agricultural trade--called Monetary Compensatory Amounts, MCA's--within the Community. The abolition of MCA's has been called for since 1977 by the EEC Commission. The imposition of the MCA policy upon the Netherlands has an effect similar to that of the principal EEC farm pricing policy. It simply changes the conditions of export demand for Dutch agricultural products, and our original argument applies.

always equal to the intervention level, that is, only if intervention goods were always purchased by an intervention agency. In fact, intervention is not continuous for most EEC-supported products. For example, from 1969 to 1976, no intervention purchases of sugar took place for five of these years, none occurred for beef for one-half of these years, and even among the more heavily supported products, no intervention occurred for butter and skimmed milk powder for one-eighth of these years. (E.N. Rolfe, Idem., Centre Feature, p. 8.) Moreover, an infinite elasticity would require all of the joint products of the underlying investment to be supported. In fact, even for the Dutch dairy sector, the Dutch industry receiving the heaviest EEC support, over 80 percent of the joint products of the farms in that industry received no EEC support in 1979. (See "The Netherlands-Agricultural Situation Report," Idem., p. 9.)

Therefore, the evidence indicates that EEC intervention subsidies do not convert the normal, negative slopes of the long-run demand curves for the supported industries to anything approaching infinite elasticities.

II. DOES THE EEC GUIDANCE PROGRAM PROVIDE A REASON FOR THE NETHERLANDS TO SUBSIDIZE AGRICULTURAL INVESTMENTS?

Along with its agricultural pricing policy, which takes the bulk of its agricultural expenditures, the EEC subsidizes investments in agricultural modernization, farm amalgamation, agricultural training, special measures for difficult farming areas, and the processing and marketing of certain farm products. For the most part these are "joint schemes" requiring member states to contribute a portion of the aid. EEC member states may veto the subsidy by refusing to contribute their share.

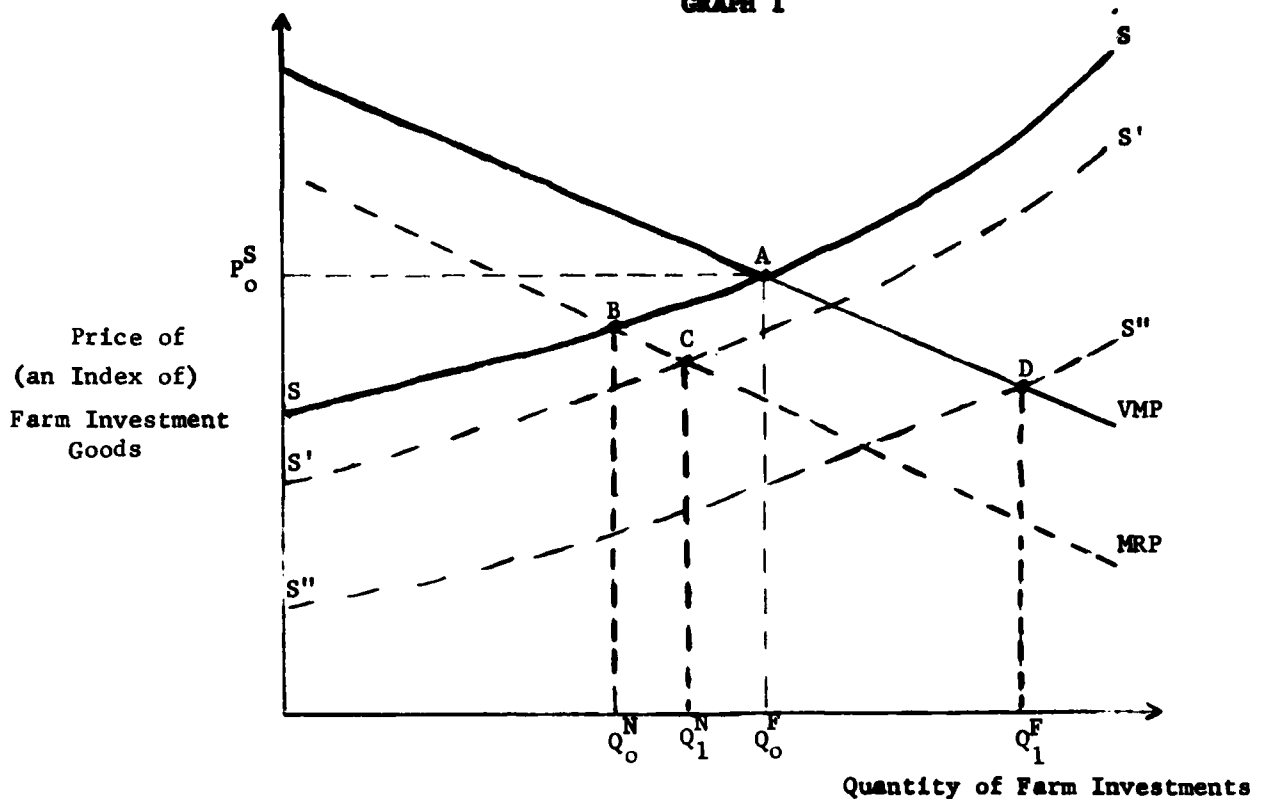
Of particular relevance is Directive 72/159 of the EEC Guidance Program for agricultural modernization of farms, which provides for interest-rate subsidies to Community farmers who carry out farm development plans, contingent upon a contribution from a member state.³ In the Netherlands, successful farmer applicants receive an interest rate subsidy of 5 percentage points, thereby reducing farmers' prime borrowing rates about fifty percent, from about 10 to 5 percent of the loan. The EEC reimburses one-quarter of the Dutch subsidy. (Commission of the European Communities, Credit to Agriculture, IV, The Netherlands, February 1976, pp. 54-60.) The effective EEC subsidy rate on a qualified, highly durable, agricultural investment is therefore about 12 percent.

When should Dutch policymakers accept the EEC subsidy to farmers? In this section we derive the conditions for the Netherlands to gain from accepting the EEC subsidy. In the process, we also show that Dutch farmers should prefer more subsidized investments than Dutch policymakers will approve, a widely observed fact.

Graph 1 provides a guide for our analysis.

³ A farmer submits a farm modernization plan to the relevant national government agency (in the Netherlands, the Development and Redevelopment Fund for Agriculture), and applies for a loan of 6 to 15 years duration. The farmer is eligible for various loan amounts depending upon a comparison of his expected farm income relative to the average level of nonfarm income in his area. The farmer receives the loan from the member state government agency.

GRAPH 1



The zero-subsidy equilibrium quantity of farm investment goods, Q_o^F , occurs where the demand and supply of farm investment goods are equal, at point A on the graph. The Value of the Marginal Products from these investments, VMP, equals, at any quantity of farm investments, the additional products generated by an additional unit of farm investment times the market values of these products, or $P.MP_S$, given the equilibrium quantities of other factors of production. The VMP curve intersects the Netherlands (indexed) farm investment supply curve, SS, at A, where the equilibrium supply price and value of the marginal product are equal. In other words, when there is no subsidy, farmers will purchase farm investment goods until the Value of the Marginal Products from these investments equals the cost of additional investments, P_o^S , described by point A in Graph 1.

Without EEC support, Dutch policymakers should prefer that their farmers, being net exporters, purchase fewer than Q_o^F farm investment goods. In particular, they should like their farmers to purchase investment goods only out to the point Q_o^N . For Dutch policymakers,

unlike Dutch farmers, should take into account the fact that additional farm investment goods reduce the prices of their agricultural exports. That is, while the fall in the price induced by one farmer adding investment is negligible to him, to the Netherlands as a whole the price change is significant because it applies to the exported production of all such farmers. This reduction in the export price is reflected in the Marginal Revenue Product (MRP) curve lying below the VMP curve; the MRP (=MR.MP) curve differs from the VMP curve in that the MR to the Netherlands from exports is below P, the prices of the agricultural commodities anticipated by farmers. Thus, when there is no EEC subsidy, Dutch policymakers place a lower value than individual Dutch farmers on the equilibrium quantity of farm investments. As a result, the policymakers prefer a lower quantity of farm investments than Q_0^F . Nevertheless, farmers decisions prevail; as we have not given Dutch policymakers any ability to impose descriminatory taxes on farmers, farmers purchase the Q_0^F level of farm investment goods.

The introduction of the EEC subsidy raises the question: Will Netherlands policymakers be willing to contribute the subsidy required by the Community, and, if so, to what extent? The basic answer to this question depends upon the long-run export elasticity of demand for farm investment goods. Derived from the long-run demand for agricultural commodities, investments represent long-run decisions.

Suppose the introduction of the twelve percent EEC investment subsidy to Netherlands agricultural exporters reduces the cost of farm investment goods to the Netherlands, as shown by the new investment supply curve S'S' on Graph 1.

Dutch policymakers will still prefer an output lower than Q_0^F if and only if $MRP < S'S'$ at Q_0^F , that is, if and only if the vertical difference between SS and S'S' at Q_0^F is less than the difference between P.MP and MR.MP at Q_0^F . Since the vertical distance between SS and S'S' at Q_0^F is $.0125 P_0^S$, the condition for policymakers in the Netherlands to prefer a lower output is

$$.0125 P_o^S < P_o MP_o - MR_o MP_o, \text{ or}$$

$$.0125 < 1 - \frac{MR_o MP_o}{P_o MP_o},$$

$$.0125 < 1 - \frac{MR_o}{P_o},$$

$$.0125 < 1 - \left(1 - \frac{1}{e}\right),$$

$$e < 8,$$

where e is the absolute, long-run elasticity of demand for Dutch exports. That is, Dutch policymakers should reject the EEC subsidy for Dutch agricultural products with long-run export demand elasticities less than eight; otherwise, they should accept the subsidy to these products.

Still remaining to be discovered by us are precise estimates of the long-run export elasticities of demand for Dutch farm products. Several agricultural economists report that long-run export demand elasticities substantially lower than eight prevail for any product of a country that exports a relatively large fraction of the world's consumption of the product, and substantially higher elasticities occur for products that constitute a small fraction. For the Netherlands, tulip bulbs exemplify an export of a large proportion of the world's consumption of the product, and beef and veal, exports of a small fraction. As discussed in Section I, higher export elasticities also would be expected for products regularly sold into intervention.

Dutch policymakers appear to act according to our derived policy rule. They accept the EEC subsidy for cattle farming, whose products include beef and veal, and provide little to open air horticultural products, including tulip bulbs. For example, in 1973 and 1974 Dutch cattle farming received 84 and 72 percent, respectively, of approved Dutch expenditures. In the same years, open air horticultural crops,

including tulip bulbs, received only two to three percent of these expenditures. (Commission of the European Communities, Credit to Agriculture IV, The Netherlands, February 1976, page 59.) These findings are not inconsistent with the intervention policy having some effect on the export elasticities facing the Dutch dairy sector.

Finally, individual Dutch farmers prefer more farm investment goods than policymakers will approve. Since the EEC requires the cost to farmers to be only about 50 percent of the original cost, as depicted by the curve labeled S'S' in Graph 1, farmers' private costs are lower than the Netherlands costs, while farmers' private values are still above the Government's value, or MRP. In Graph 1, the presence of the subsidy leads Dutch farmers to prefer the level of investment labeled Q_1^F , while the Government prefers Q_1^N . An excess demand for farm investments prevails. Dutch policymakers must ration the limited subsidy to farm investment.

III. CONCLUSION

Our study supports prevailing Dutch policies.

Without an EEC subsidy, Dutch policymakers should not induce relatively more Dutch agricultural investments for export. In fact, for agricultural commodities not receiving special EEC subsidies, the Dutch Government neither requires nor favors such investments.

Within the context of the EEC subsidy, Dutch policymakers should accept the investment subsidy for agricultural products with highly elastic export demands. Given these export demands, the price reductions induced by these investments increase Dutch revenues. In contrast, Dutch policymakers should reject the EEC subsidy for agricultural products with highly inelastic export demands. Indeed, available evidence indicates that Dutch policymakers accept the EEC subsidy according to our derived policy rule.

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