



YAYIN NO : DPT:2241 - AETB:25

30. KURULUŞ YILI

TURKISH AGRICULTURE AND
EUROPEAN COMMUNITY POLICIES,
ISSUES, STRATEGIES AND
INSTITUTIONAL ADAPTATION

Report of a Study by

Wye College, University of London
Middle East Technical University, Ankara
State Planning Organisation, Ankara

For the
United Nations Development Programme

Executed by the
United Nations Conference on Trade and Development

ISBN 975 - 19 - 0311 - 4

DPT Yayınları Ücretsizdir, Satılmaz
Yayın ve Temsil Dairesi Matbaa Birimi 1990--ANKARA

DECEMBER 1990

4.5.7 Derivation of 1995 world prices (cif Istanbul)

Identifying the 1995 world prices posed very serious problems. There are no global econometric models which can produce forecasts for the long list of agricultural products which are included in TEAM. A number of forecasts is made for aggregated groups of products, most notably by the World Bank through its forecasting department. These have been utilised wherever they directly apply (eg. for the major commodities such as wheat, beef, rice, tobacco, cotton). However, this leaves many products for which there are no published 1995 forecasts. The approach taken was to apply to these products the same percentage change in prices between 1988 and 1995 as applied to a matched 'model' product for which World Bank forecasts do exist. Thus for all fruit and vegetables, the same percentage change in prices between 1985 and 1995 as identified in the World Bank forecasts for oranges has been used. Whilst this may be unsatisfactory, there seems to be no other appropriate and applicable method for this exercise. Armed with these price assumptions for policy prices and exogenous world prices, together with the detailed understanding of how each support regime operates, the next task was to certify the existing Turkish agricultural sector model to incorporate the workings of the CAP. An indication of what was involved is given in Chapter 5.

5 Modelling the effects of the CAP on Turkey

5.1 Introduction

5.1.1 The modeling task and approach

Chapter 4 sets out the details of the CAP regimes that Turkey will have to adopt by the completion of accession to the EC together with an explanation of the process of generating prices that would face Turkish farmers if this were to occur in 1995. Analysing the effects of accession involved the modelling of the Turkish farm sector with the partial or total removal of current Turkish support systems and their replacement with the CAP regimes operated within the EC.

The detailed approach to modelling is set out in this chapter as follows:

- first, the method of representing the common market organisation for each CAP product is shown using standard models of supply and demand in what are known as partial equilibrium diagrams;
- second, there is a description of TEAM, the Turkish European Agricultural Model.

5.1.2 Types of intervention before and after accession

The different kinds of policy instruments used currently in Turkey and the EC to intervene in agricultural markets can be summarised as:

Market intervention in Turkey outside the EC	Market intervention in Turkey within the EC
Turkish support prices	EC support prices
Input subsidies	Producer/processor aids
Trade taxes/refunds	Import levies and export taxes/refunds
Trade restrictions/quotas	Market restrictions/quotas
Exchange rate regimes	Equilibrium exchange rate

It is apparent from this list that there is some similarity in the nature of the approach to intervention as currently operated in agricultural markets in Turkey and the EC. Turkish adoption of the CAP regimes will, however, involve changes in the magnitude and initial financing of the intervention costs.

Agricultural support prices and public procurement in Turkey will be replaced with EC intervention prices and purchases. Turkish public procurement is currently financed through the domestic budget; EC intervention is ultimately financed from the budget of the Community.

In both systems, supplies removed from the market may be transformed or destroyed, sold onto foreign markets or released back onto the domestic market after a period of storage.

Currently Turkish input subsidies are paid on fertilisers, fuel, water and seeds with resulting reductions in production costs. After accession there will be no direct input subsidies of this kind although for certain products (eg. durum wheat, oilseeds and some processed fruit and vegetables) there will be producer and processor aids available. Producer aids are paid directly to farmers and processor aids are passed on via the first buyers of agricultural produce.

Trade arrangements after accession will involve the adoption of the EC's systems of border protection such as variable import levies or minimum import prices together with the provision of export refunds for some products (see Chapter 4). Trade patterns will alter such that imports from EC countries will be levy/tariff free while imports from third countries will be subject to such charges. The revenue raised by import charges will no longer accrue to Turkey after accession but will belong to the common EC budget. In a similar fashion, Turkish exports to the EC will no longer face trade barriers and there will be the common financing of export refunds on exports outside the Community from the EC budget.

Some products will no longer be subjected to domestic or foreign trade quota restrictions once Turkey adopts the CAP while others will come under the EC systems of production quotas (eg, milk and sugar).

Foreign exchange arrangements are an indirect intervention in the agricultural sector but have an important influence through trade. Removal of foreign exchange controls by Turkey and the resulting changes in exchange rates are likely to lead to a devaluation of the Turkish Lira and a consequent boost in export prices and quantities.

5.1.3 Modelling types of intervention: partial equilibrium analysis

The markets for individual products can be represented in a static, supply and demand model (eg, see simplified examples for cereals and oilseeds regimes within the CAP in Chapter 4). The analysis is partial in that it does not bring in changes occurring beyond the selected market but it allows quantification of the distributional impacts of intervention in the domestic market together with foreign trade effects.

In its simplest form (Figure 5.1), a partial equilibrium model shows equilibrium between domestic supply and demand in a situation of no intervention and no foreign trade. DD is the domestic demand for an agricultural product in its raw form and SS is domestic supply. Market equilibrium gives domestic production and consumption of Q1 with price of P1. Conventional economic theory identifies the area CS as a quantifiable indication of net consumer benefit or 'consumer surplus' that results from consumption of quantity Q1 at price P1. Likewise, the net benefit to the producer, or 'producer surplus' resulting from selling Q1 at price P1 can be quantified by measuring the area PS. The total net benefit shared by consumers and producers at equilibrium is the sum of areas CS and PS. When the basic model is modified by introducing trade and/or government intervention, measurement of the resulting changes in CS and PS provides a means of quantifying the impact of these changes for Turkish consumers and producers.

In sections 5.2 and 5.3 below, models of Turkish agriculture before and after accession are described with the aid of a selection of the simpler modifications from the basic model.

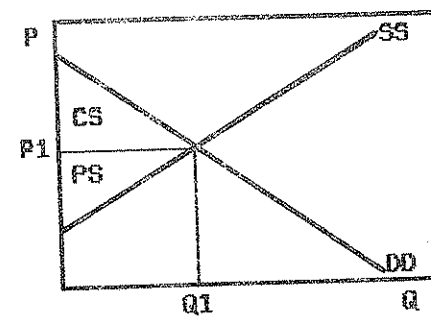


Figure 5.1: No intervention and no trade

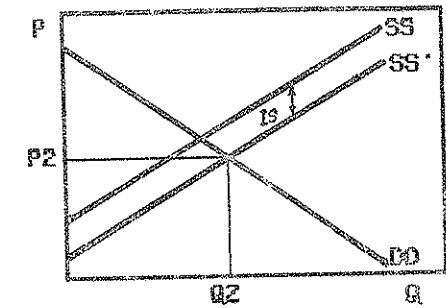


Figure 5.2: Before accession: supply is shifted down by an input subsidy

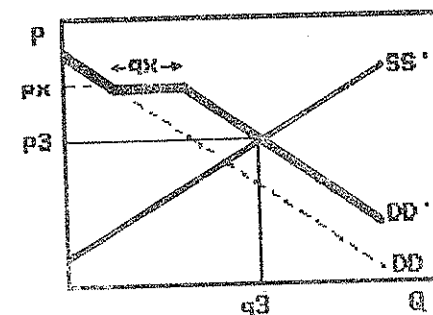


Figure 5.3: Before accession with exports at price px and input subsidies

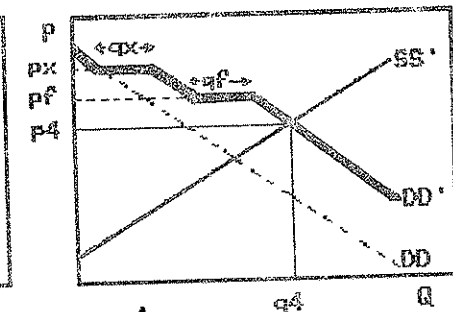


Figure 5.4: Before accession: public procurement at pf, exports at px and input subsidies

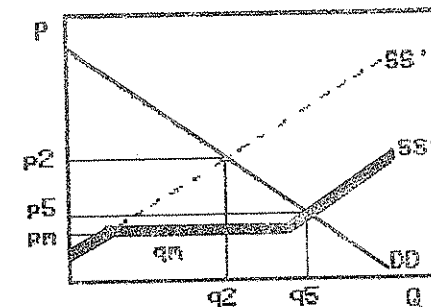


Figure 5.5 Before accession: imports with input subsidies

5.2 Modelling Turkish agriculture: before accession

5.2.1 Introduction

Following the explanation above, in the current situation prior to accession, the required modifications to the basic market model include: an allowance for input subsidies, exports, public procurement and imports.

5.2.2 Modifications to the basic model: input subsidies

Provision of an input subsidy will result in a reduction of the unit cost of production of a given product. In Figure 5.2, the effect of a cost reduction of IS per unit is to shift the domestic supply from SS to SS'. This changes the equilibrium levels of quantity and price to Q2 and P2 with resulting changes in both consumer and producer surplus.

5.2.3 Modifications to the basic model: exports

If the product can be exported at price p_x (Figure 5.3), then it may be possible to export a certain quantity (q_x) at that price. This modifies the demand in the model such that there is a 'step' representing export demand while the conventional downward sloping part continues to describe domestic demand. The 'step' length has to be limited in the model based on administered limitations (eg, EC intervention) or judgement regarding reasonable capacity of the EC or world markets to absorb Turkish exports.

Once again, the interaction between demand and supply gives the new equilibrium. If input subsidies are included, then demand and supply will be given by DD' and SS' with equilibrium at P3Q3.

5.2.4 Modifications to the basic model: public procurement

If, in addition to input subsidies and exports, there is a system of support buying at price p_f (Figure 5.4), then this will provide a further element of demand for the product. If a quantity q_f can be sold in this way, then an additional 'step' is introduced into the demand function DD'. Now equilibrium will be at p_4q_4 . Consumer surplus will be the area bounded by DD' (including the steps q_x and q_f), the price line (P4) and the price axis (P). Producer surplus will be the triangle bounded by SS', p_4 and P.

5.2.5 Modifications to the basic model: imports

Figure 5.5 modifies the basic model (after allowing for the input subsidies) by opening up the Turkish economy to agricultural imports. Domestic supply is DD' and equilibrium would occur at price p_2 without importation. If a quantity of imports, q_m are available at the lower price p_m , then the supply function becomes stepped along SS''; interaction with domestic demand, DD, results in a new equilibrium at p_5q_5 .

5.3 Modelling Turkish agriculture: after accession

5.3.1 Introduction

Following accession, Turkish policy instruments are replaced by CAP instruments. Thus the modifications to the basic model include allowances for production/processor aids, intervention, exports to the EC, exports to the rest of the world (ROW), imports from the EC and imports from the ROW.

5.3.2 Modifications to the basic model: production and processor aids

Figure 5.6 shows how the basic model is modified for those products receiving either producer or processor aids. The aid, whether provided directly or indirectly, is in effect a per unit subsidy on output which is conventionally represented as a downward shift of the supply function ie, from SS to SS'. Thus, equilibrium changes from the basic model p_1q_1 to p_6q_6 .

5.3.3 Modification to the basic model: intervention and exports to the EC and ROW

Figure 5.7 is a composite model showing the the situation where there are four categories of demand for Turkish output:

1. EC intervention;
2. exports to other EC countries;
3. exports to the rest of the world (ROW);
4. domestic (ie, Turkish) demand.

Equilibrium price is determined by the intersection of the complex stepped demand curve and the domestic supply curve. For a product receiving a producer aid such as durum wheat, this would be the basic supply curve shifted down to SS'. Thus, equilibrium price (marginal) and total quantity would be p_7 and q_7 as this particular example is drawn. This would mean that total domestically produced supply (q_7) is disposed of as follows:

1. ef is sold into EC intervention at price p_{ef} ;
2. ex is exported to other EC countries at p_{ex} ;
3. a proportion of wx is exported to world markets at p_{wx} ;
4. the sum of the three quantities represented by the down-sloping domestic demand function ($a+b+c$), is sold in Turkey at p_{wx} . Thus the average price received by the Turkish producer would be a weighted average of these three prices.

The equilibrium could, of course, occur at any point down the demand function depending on the position of the domestic supply function. This in turn depends partly on the extent of any shift due to producer subsidies.

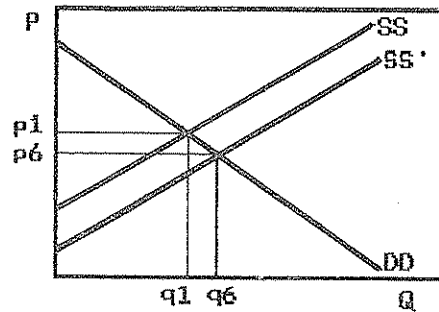


Figure 5.6: After accession: production and processor aids

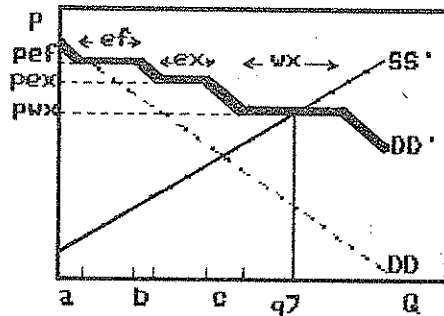


Figure 5.7: After accession: Intervention, exports to EC, exports to rest of the world and producer/processor aids

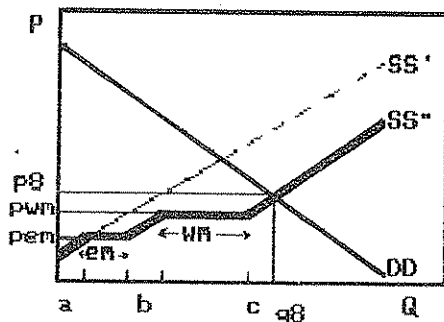


Figure 5.8: After accession: imports from EC and rest of the world

5.3.4 Modifications to the basic model: imports

Representing a situation of Turkey importing agricultural products once inside the EC is demonstrated in Figure 5.8. With Turkish supply given by SS', Turkish demand is supplied from three possible sources:

1. em is imported from other EC countries at price pem;
2. wm is purchased from world markets at price pwm;
3. the sum of the three quantities represented by the upward-sloping supply function (a + b + c) is supplied by domestic producers.

Once again, the equilibrium position, balance amongst the three sources and the consumer price, depends on the precise position of the supply and demand functions.

5.3.5 Summary of partial equilibrium models

Manipulating these basic models allows the formal representation of the whole range of products covered in the study (see Chapter 4) although the examples given above do not apply in the same way to all products. Given the framework of partial equilibrium analysis as explained above, other likely impacts of accession were incorporated into the models. These include demand shifts to account for expected income changes following accession, supply shifts in the case of wage rate changes and both demand and supply shifts in the case of exchange rate changes.

While each model reflects the impacts of accession for a single product in isolation from the rest of agriculture and the rest of the economy, the overall modelling process adopted incorporates the input-output interactions amongst all products studied.

5.4 Turkish European agricultural model (TEAM)

5.4.1 Introduction

TEAM was the model used to assess the impact of EC accession and Turkish adoption of the CAP and is a mathematical programming sector model. It was employed first to simulate the agricultural resource use, production, consumption, trade and prices in Turkey in the base year, 1988 (see Figure 5.9). The model's simulated results were then compared with those actually observed in the base year for calibration and validation purposes. Due to the unique feature on non-linear cost parameters which are estimated endogenously in the model, the traditional validation and calibration methods are not applicable to TEAM. The exact calibration of the model is guaranteed by the non-linear cost parameters. The validation of the model is performed in two ways. First, the non-linear cost parameters estimated for the 1979-88 period and in terms of projectability into the future. Second, most model simulations (1979-86) are employed to project the base year employed in the model, 1988.

5.4.2 Turkish accession - 1988

Once calibrated and validated, the model was modified by removing the elements of Turkish agricultural policy and substituting the various regimes operated under the CAP. The simulated resource use, production, consumption, trade, price and intervention quantities were compared to the base magnitudes to analyse what would have been the impact of accession if Turkey had become a full EC member state in 1988 with all CAP regimes instantly and fully applied.

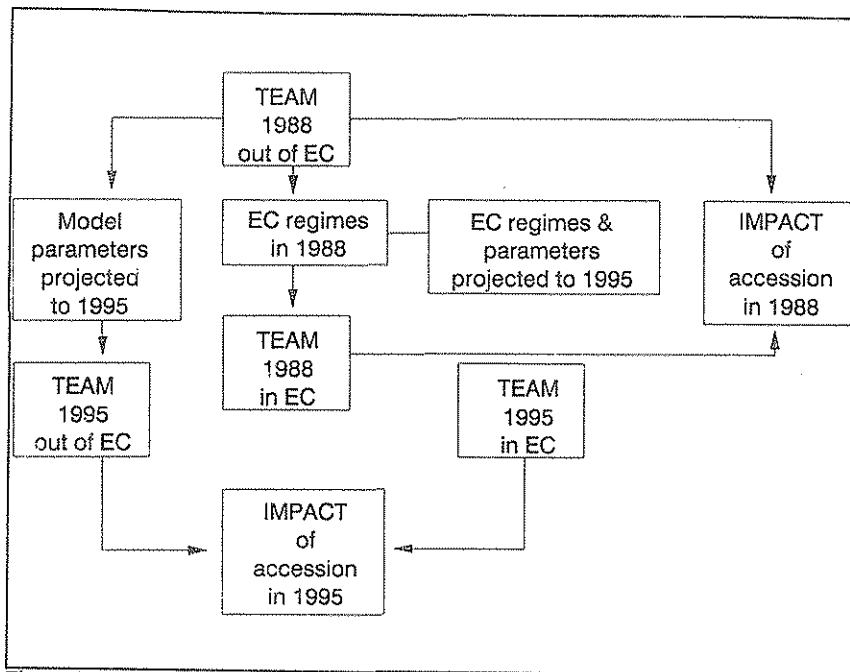


Figure 5.9: TEAM simulations

5.4.3 Turkish accession – 1995

The next stage of the simulations addressed a more realistic question, namely the impact of accession in 1995. This entailed the projection to 1995 of the following parameters for incorporation into TEAM in order to simulate Turkish agriculture in 1995 outside the EC: resource endowments, resource costs, trade prices and limits and consumer demand. To see the effect of accession in 1995, it was then necessary to project the following EC parameters for TEAM: EC support prices and market prices, world prices, quotas, producer/processor aids and the operation of CAP regimes. Comparing the results of the two 1995 simulations gives a more realistic idea of the likely impact of accession.

5.4.4 Operation and components of TEAM

TEAM is an optimising model covering the whole of the Turkish agricultural sector. It is a mathematical programming model which operates by maximising the sum of consumer and producer surplus. Thus the welfare of consumers and producers, which often conflict, are considered in the model's objective function.

For each product covered, an exogenous, linear demand function is specified. In addition, the domestic demand is augmented with foreign demand, specified as EC plus that from the rest of the world, and intervention possibilities.

For each product the domestic supply function is endogenous in the model and determined by the costs of production which include the opportunity costs internally generated by the model. Domestic supply is also augmented by foreign supply, specified as EC plus rest-of-the-

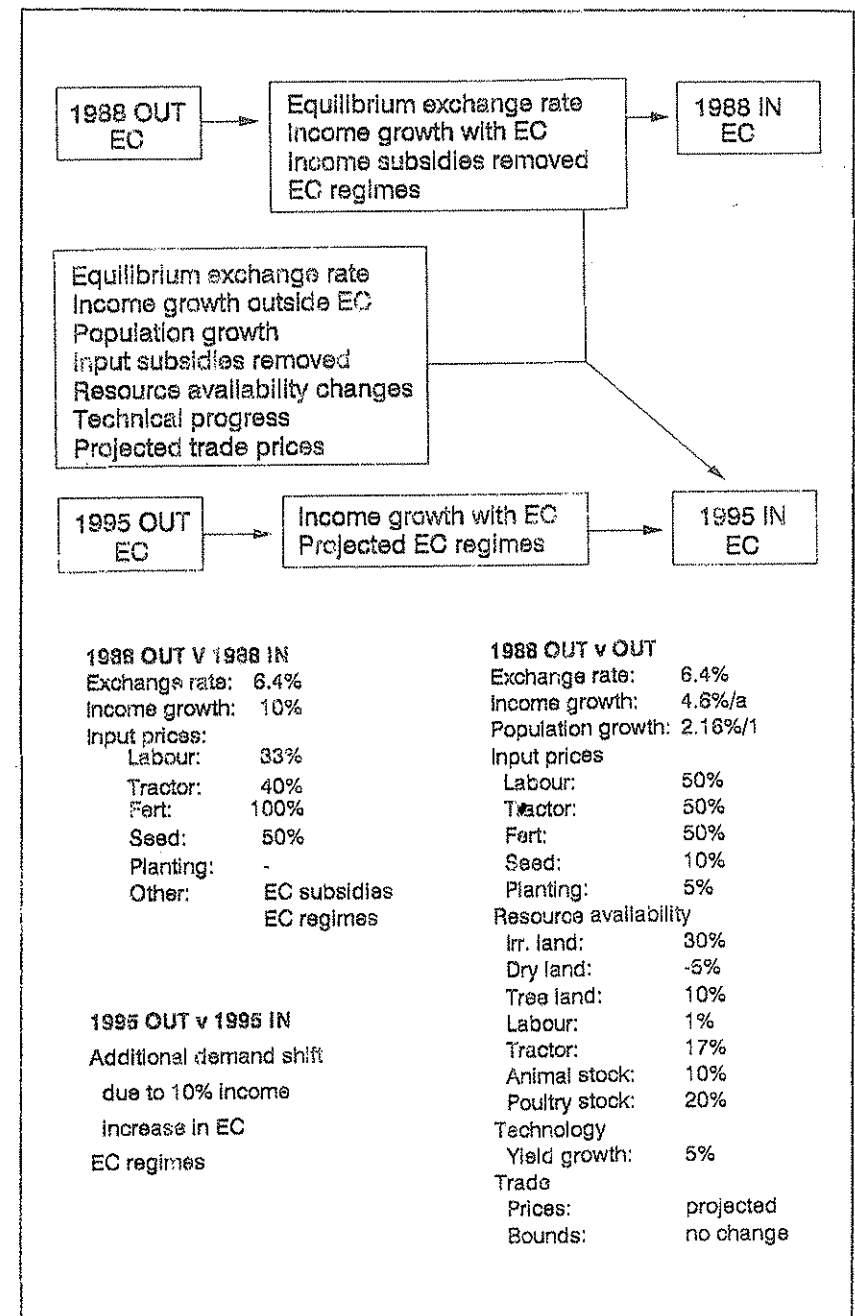


Figure 5.10: Summary of parameter changes for model simulations

world supply. Optimality in the model entails equality of total utilisation and total availability for all commodities.

The core of the model consists of production (input-output) activities and resource constraints. The input-output coefficients for single and rotation activities as well as the resource endowments such as labour, land, animal stock, and tractors are specified exogenously, while some inputs such as feed, seed and animal power are produced endogenously in the model.

The model consists of three interlinked sub-sectors, namely, annual crops, perennial crops and livestock. These sub-sectors are linked via inputs and outputs. The livestock sector uses as input, the output and by-products of crop production as feed, and yields animal power as an input to both annual and tree products. The model is given a choice of two production techniques, animal or mechanised, and can assign any combination of weights to these two techniques to produce a given product depending on the optimal allocation of resources guided by the objective function.

Table 5.1 gives a summary of model statistics regarding numbers of inputs, products, activities and model size.

Table 5.1: TEAM statistics

Feature	Size
Model size	180 x 761
Number of linear variables	638
Number of non-linear variables	123
Number of equations	160
Number of products	
Final products	66
Annual	27
Perennial	19
Livestock	20
Intermediate products	19
Number of activities	150
Number of inputs	65
Labour	4
Tractor	4
Animal power	4
Feed	6 (26)
Seed	24
Capital	15
Land	8
Fertiliser	2

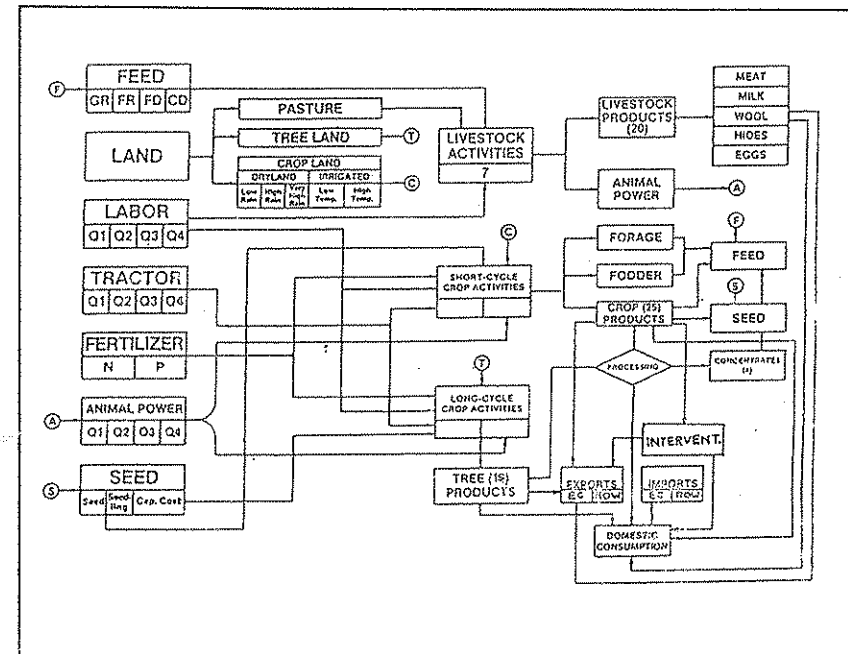


Figure 5.11: Basic structure of TEAM

6 Impacts of Turkish adoption of the CAP: The results

6.1 How to read and interpret the results

Assessing the likely impact of a new economic policy is fraught with difficulties. It is an exercise concerned with the future. It is therefore based on assumptions about three matters: the new policy, the policy which would have applied in the absence of the new policy, and the changes which will take place irrespective of policy. In this study there is a further complication. The new policy to be analysed, Turkey's adoption of the CAP, is examined at two points in time, 1988 and 1995. The first date was chosen as the most recent for which full data is available, it is therefore statistically well founded. The second date represents a future date before which Turkish accession is unlikely and yet not so far into the future that the statistical basis for the modelling is unsound. Chapter 4 describes the detailed assumptions about the economic circumstances in which the Turkish agricultural and food industries would have to operate if she joined on either of these dates. Between 1988 and 1995 there will continue to be general economic growth which will stimulate increased consumption of many farm products. There will also be further technological progress in agriculture and further development of the resource base, particularly of irrigated land, which will enhance the productivity of the agricultural sector. The assumptions concerning these changes, together with the assumptions about the continued liberalisation of Turkish agricultural policy are described in Chapter 5.

Thus, all the results to be summarised and discussed in this chapter are conditional on the assumptions made. Because these results are produced by a computer model it would be possible to discover the effects of making different assumptions about any of the above factors. Indeed, an important part of the brief of this study was to ensure that Turkish officials were provided with the means and training necessary to recompute the results in the light of changing circumstances.

In technical jargon, the analytical procedure used is partial and comparative static. 'Partial' refers to the fact that only the direct effects on the agricultural economy have been estimated here. In reality, membership of the EC will affect all sectors of the economy. This will set up new competitive relationships for factors of production between sectors. Some sectors will be advantaged and will be better able to bid for resources, others will undergo relative decline. It is also expected that there would be a general boost to the economy through a better allocation of resources and the benefits of scale economies achieved by operating in a much larger market. None of the inter-sectoral effects have been analysed, and only a crude exogenous general 'income effect' of EC membership has been incorporated.

'Comparative static' refers to the mode of analysis in which two situations are compared with and without a policy change, in this case, membership of the CAP. The comparison thus tries to hold all other variables constant so that the effect of the policy change can be distinguished from all other sources of change in economic variables. The static nature of the analysis refers to the fact that no attention is focused on the process of adaptation to the new policy. The

comparison is between the base and the new situation after the change and after all economic agents have completely adjusted to the new policy. In reality there are two elements of dynamism which are ignored by this mode of analysis. First, the adoption of the CAP will not be an instantaneous process. New members are generally offered a transitional period during which the existing methods of support are dismantled and the new measures and prices gradually applied. This accessionary period usually spans many years, 5 in the case of the UK and 10 for Spain and Portugal. The second dynamic element is that producers, traders and consumers generally take time to perceive and respond to changes in economic signals. Thus the processes of investment, reallocating resources and changing consumption patterns in the face of new price relationships and income levels all take time, perhaps several years, to work out. The analysis reported here assumes full adoption of the CAP (either in 1988 or 1995) on the first day of the year in question and full adaptation to the new circumstances by the end of the year. Thus the large impacts discussed below will, in reality, not all appear in the first year of membership but would be manifest over a much longer period. In short, the results described show the effects of instant and full adoption of all the support regimes in the CAP in the year indicated, and immediate and full adjustment of Turkish farmers, traders and consumers to this policy.

A final word of qualification before presenting the results concerns the nature of policy making itself in the EC. By becoming a member of the Community, Turkey will of course have the full rights and obligations of any other member. This includes participation in the continual process of decision making for the Common Agricultural Policy. The CAP is not a fixed set of policies but is a continually changing set of compromises reached between the participating members. As it will be seen below, many features of the present CAP were not defined with a country of the size and characteristics of Turkey in mind. Both the negotiations for accession and subsequent Turkish participation in the agricultural decision making once she becomes a member would undoubtedly affect the decisions reached, thereby moulding the CAP more to her benefit. In what follows, with one exception in the case of oilseeds and certain other processed products, very little allowance has been made for these interactive effects. The analysis shows the effects of the CAP as it is currently constituted and not as it might be with the interaction of Turkish negotiators. The nature of the influence of Turkey on the CAP is considered in Chapter 8.

These results are therefore not forecasts of what Turkish agriculture would look like after full adoption of the CAP, but they are indications of the type and magnitude of impacts of subjecting Turkey's agricultural sector to a completely different set of price relationships and support arrangements. In what follows all prices and values are quoted in constant 1988 US dollars. The exchange rate between the dollar and ECU assumed was unity.

6.2 Overview of the economic effects of the CAP

In measuring the impacts of changing policies economists have devised indicators of the welfare of two main groups in society, producers – in this case farmers, and consumers – in this case the entire population because everyone eats. The indicator of producer welfare is called producer surplus. This is akin to the net income of farmers after all variable factors have been paid for and is thus a return to the fixed factors in farming, the farmer and his family, his land and capital. The indicators of consumer welfare is consumer surplus. This measures the benefit to consumers of a particular combination of prices and consumption in terms of the extra worth of all intra-marginal units consumed. The importance of these measures, which are added together to calculate 'total welfare' is not their absolute value which is extremely difficult to interpret, but the changes from one situation to another.

Based on this overall measure of welfare which is the sum of economic well being of consumers and producers the overall impact of membership in 1988 is an improvement of 18%. If membership is delayed until 1995, the corresponding welfare improvement is 24%. The full meaning of these changes may be seen from the absolute welfare indicators shown below:

Table 6.1 Overall welfare effects of the CAP

		Billion dollars	Change %	Index 1988=100
1988	Turkey out of EC	29.9		100
	Turkey in EC	35.4	18	118
1995	Turkey out of EC	47.3		158
	Turkey in EC	58.6	24	199

Compared to the base situation, that is Turkey outside the EC in 1988, the economic effect of membership in 1995 is an increase in well being of 99%, ie, from \$30 billion to \$60 billion. However, of this increase, 58% is the effect of the expected economic growth in Turkey between 1988 and 1995 outside the Community and the effects of the improvements in agricultural resources and technology during this period. These figures serve to illustrate the several comparisons which can be made to indicate the impact of membership of the CAP. Throughout the presentation of all the results it is possible to make four comparisons:

- A. Description The effects of membership 'now'.
 Comparison 1988 'in' and 1988 'out' of the EC.
 Example \$29.9bn to \$35.4bn, an 18% change.
- B. Description The effects of membership in the 'future'.
 Comparison 1995 'in' and 1995 'out' of the EC.
 Example \$47.3bn to \$58.6bn, a 24% change.

- C. Description The effect of future membership compared to now.
 Comparison 1995 'in' and 1988 'out'.
 Example \$58.6bn to \$29.9bn, a 99% change.
- D. Description The future changes outside the EC.
 Comparison 1995 'out' and 1988 'out' of the EC.
 Example \$47.3bn and \$29.9bn, a 58% change.

These indicators of overall welfare measure the economic benefits of each set of circumstances to farmers and consumers. It is possible to partition the total effects into the impacts on each of these two groups. This is done in Table 6.2 below.

Table 6.2: Economic effects of membership on farmers and consumers

			Billion dollars	Change %	Index 1988=100
Farmers	1988	Turkey out of EC	6.4		100
		Turkey in the EC	13.2	106	206
	1995	Turkey out of EC	10.5		164
		Turkey in the EC	15.0	42	133
Consumers	1988	Turkey out of EC	23.5		100
		Turkey in the EC	22.2	-6	94
	1995	Turkey out of EC	36.8		157
		Turkey in the EC	43.6	19	187

The results are striking but not unexpected. The Common Agricultural Policy comprises a set of measures designed to provide protection and support to farmers. It would be unusual if farmers therefore did not benefit. The figures show that farmers would gain in welfare by 106% through membership now. However if membership is delayed until 1995 these benefits fall to an improvement of 42%. The index numbers show that compared to the present, membership in 1995 improves the position of farmers by a third. These figures, technically, are an indicator of net income. It will be shown below that a more direct measure of income show that these figures give an exaggerated impression of the advantages to Turkish farmers of the CAP.

As far as consumers are concerned, membership now would be an undesirable event. The economic well being of consumers actually falls by 6%. This is not a surprising result. Joining an organisation which systematically raises the prices of food at the farm level is bound to be seen as a disadvantage by consumers. By delaying entry until 1995 this pain to consumers is eliminated. The smaller disparity between Turkish and EC prices in 1995, and the intervening economic growth ensure that consumer welfare is not only higher in 1995, but it actually rises upon accession to the EC by some 19%. All these figures are based on the economic concept of consumer surplus. This is a device used to indicate the benefits to consumers of being able

to purchase more at lower prices or the costs they suffer if less is purchased at higher prices. It is not a perfect measure, but none other is better.

In the summary in Table 6.1 the benefits to farmers and consumers were added to find an overall measure of welfare to society. This follows the conventional approach to such analyses, but it does imply that the marginal benefit of one dollar is the same both to farmers and consumers. Based on these welfare calculations, Turkey benefits from membership of the CAP by between one fifth and one quarter in overall welfare. However, farmers will gain considerable more from early membership and consumers do better if membership is delayed.

Figure 6.1 and Tables 6.3 to 6.5 show the overall effects of the CAP on production volume and value, consumption volume and values, the value of trade and on the average level of producer prices. In each case, the results are shown for both 1988 and 1995, outside and inside the Community.

Figure 6.1 shows that membership in 1988 would have boosted the value of production by 36% and food expenditure by 21%. The effects of future membership are very much smaller, only a 3% rise for production and less than half a percentage point rise for consumption. This is due to two factors. First, as referred to in Chapter 4 above, it is expected that the degree of protectionism in the EC will be much lower by 1995 as EC and world market prices converge. Second, the liberalisation of Turkish agriculture which is taking place in advance of membership together with the changes in technology and resources, imply a large growth in agricultural output and food consumption. Thus, most of the very large effects on production and consumption inside the EC compared to the base situation are due to the changes which will take place before Turkey joins the EC.

Table 6.3 compares these figures on the value of production and consumption with the corresponding figures for the volume of output and consumption. The changes in volume are very much smaller than for total value. Most of the value changes are thus accounted for by the changes in price. This table also shows again how the changes which may take place outside the EC before Turkey joins may dwarf the effects of membership itself. Thus production volume increases 3% with present membership and 6% with future membership (the table shows indices based on 1988 = 100 thus 139/131 is a 6% increase). Consumption volume increases 4% now, and only 3% later.

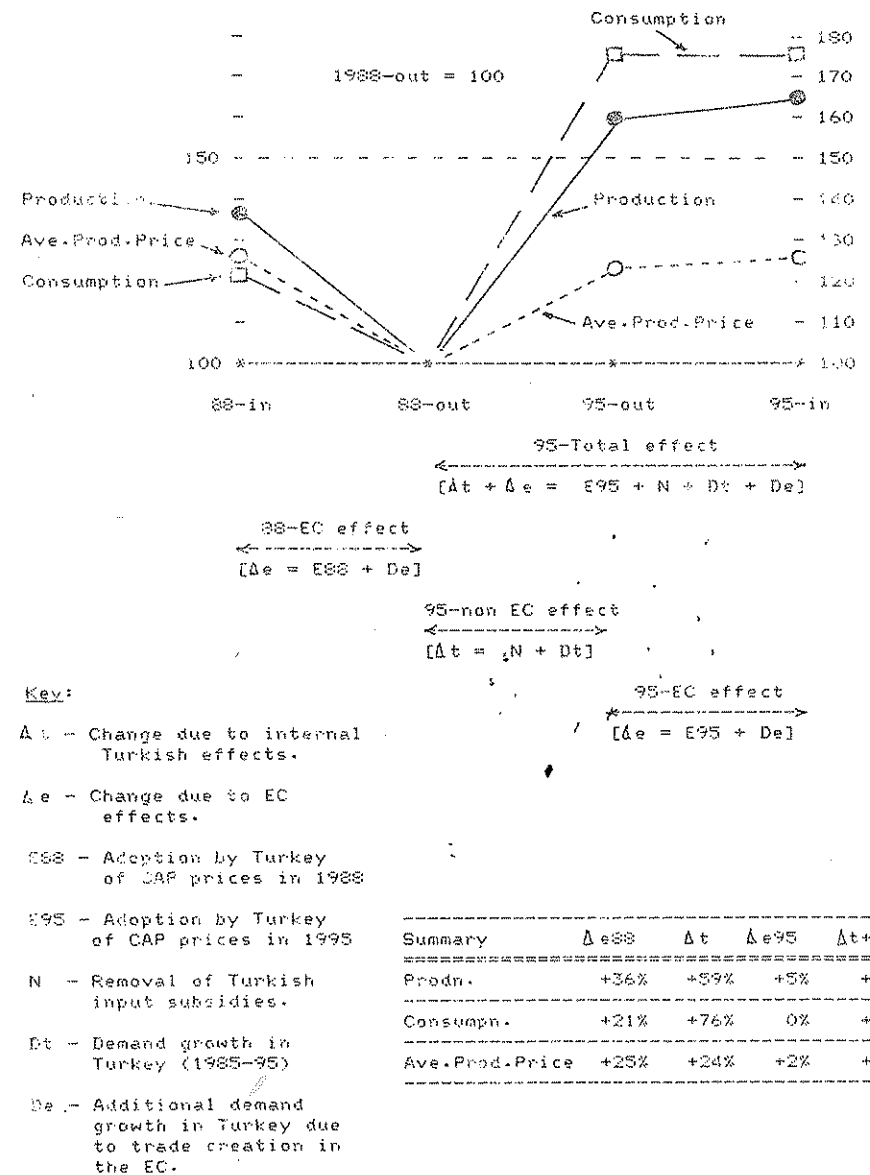


Figure 6.1 Effect of CAP on the value of Turkish production, consumption and average producer prices (1988, 1995)