

Distortions to Agricultural Incentives in Turkey

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Executive summary

- In the last 35 years, Turkey's population doubled, and its real GNP trebled. The share of the employed workforce engaged in agriculture fell from 60 percent to 34 percent and agriculture's share of GNP fell from 31 percent to under 12 percent. The sector experienced recurrent negative real income growth.
- In 2002, 36 percent of the population dependent on agriculture was below the poverty line (about double the rate in manufacturing and distribution). Nearly 20 percent of the rural population had consumption levels less than half than the national average. Also within agriculture, the productivity and income gap between the richer and poorer regions has been increasing.
- The 1930s and 1940s were characterized by state control of the economy and public services. The 1950s saw a shift towards more liberal domestic and external economic policies, which led to macroeconomic instability and strong stabilization measures. Five-year economic plans began in 1961, and for two decades the economy followed import substitution policies. After the economic crisis of the late 1970s, there was a switch to export-led growth policies and progressive trade liberalization. The period from the later 1980s has been marked by continuing macroeconomic instability, with two major currency collapses and deep recessions. The causes lie in deep-rooted weaknesses in Turkey's economic structure and public finance system, and in endemic distributional conflicts that democratically elected governments have difficulty containing.
- The agricultural sector as a whole has been heavily supported since the latter 1980s (in contrast to earlier decades), with a strong bias towards import-competing farm products at the expense of exportables. Total annual transfers to the sector exceeded 5 percent of GDP in seven years during the period 1986-2004. Much of this support did not reach farmers but rather was captured higher up the value chain.
- The nominal rate of agricultural assistance was less than that for non-agriculture until the end of the 1980s, but the transition from strong disincentives for farmers to strong positive incentives was very rapid over the 1980s and 1990s.
- The average MFN tariff on agricultural imports (WTO definition) in 2004 was over 21 percent, but this average masks wide variation in rates between different commodities. The highest rates were for livestock products, fruits and sugar (over 90 percent). Cereals and cereal products were in the range 50-60 percent, whereas oilseeds, beverages, and cotton had average MFN rates between zero and 11 percent. The weighted average nominal rate of assistance (NRA) calculated for a group of major products covering around two-thirds of primary production averaged 23 percent for the period 1986-2004.
- In 2000, an agricultural policy reform program replaced most government-determined prices and product and input subsidies with non-product-specific direct income support, but without any adjustment of external protection. A major objective of the program was to dismantle or reform the inefficient parastatal marketing system through which much of the agricultural support had been channelled.
- The NRA has followed a strong cyclical pattern since the mid-1980s. Input subsidies paid directly to farmers increased the NRA by 8-22 percentage points above the protection or taxation exclusively resulting from border measures and production subsidies. This gap fell to about 8 percentage points in the early 2000s, after the switch to direct income

support.

- The correlation between tariffs and NRAs based on the price gap between farm-gate producer prices and comparable border prices is poor for all individual commodities studied, suggesting a combination of factors such as non-tariff barriers, weak spatial price transmission, inefficiencies in transport and first-round handling, and high market share of state-owned enterprises purchasing at government-controlled prices. Caution is therefore needed in interpreting Turkey's NRAs.
- The extent to which government intervention has distorted farmer incentives in the short term is probably small. Late policy announcements, inconsistent price changes and severely delayed payments in a context of high inflation have blunted signals and created uncertainty. In the medium term, the pattern of intervention has been a disincentive for investment and modernization, although it has allowed more marginal farmers to survive.
- Reducing imperfections in the economic environment in which farmers operate, and improving the medium term consistency of policy implementation, would raise the transfer efficiency of existing support, which – to the extent that it is targeted appropriately – would help alleviate rural poverty.
- More specifically, reducing policy-induced distortions alone may have a worsening effect on rural poverty in the absence of accompanying improvements in labor market flexibility, massive investment in training and job creation (particularly in rural areas), and restructuring of down-stream and off-farm sectors.
- In October 2005, Turkey began negotiations for EU membership. Negotiations are still at a very early stage. It is expected that Turkey will align its border protection for agriculture and its domestic agricultural policies more closely with those of the EU, but not necessarily immediately and possibly not until nearer the end of those negotiations. Also, inflows of FDI triggered by the prospect of EU entry could stimulate job creation in other sectors that would absorb some of agriculture's surplus labor. In addition, pre-accession EU funds might be used to finance programs that would lift parts of the rural population out of poverty.

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Introduction and summary

The aim of this study is to give an overview of the evolution of Turkey's agricultural policies in recent decades, to examine the extent to which they may have distorted incentives, and to attempt an explanation of the underlying forces that have driven the process and conditioned the results. The review period for the assessment begins in 1961, and continues up to the present. However, in order to explain the situation prevailing at the start of this period, various trends and policy preferences are traced back to earlier decades.

Turkey experienced rapid population growth in the second half of the twentieth century (Table 1). Although the population more than trebled between 1950 and 2004, heavy out-migration to urban areas and overseas meant that the rural population grew at half that rate. The agricultural workforce fell from 84 percent of the working population in 1950 to 60 percent in 1970 and 34 percent in 2004.

Despite healthy real growth rates for the economy as a whole, the economic performance of agriculture was poor, with average annual real growth rates of 1.6 percent in the 1970s, 0.6 percent in the 1980s, and 1.5 percent in the 1990s. In 1950, agriculture's share of GNP was 41 percent, but by 2004 it stood at just 12 percent. Figure 1 shows that in the last 25 years of the period reported, agriculture experienced negative real growth in more than one year out of three. In 2002, nearly 20 percent of the rural population had consumption levels 50 percent or more below the national average, and 36 percent of the population dependent on agriculture was below the food and non-food poverty line (SIS 2004).

And yet Turkish agriculture was highly supported throughout the closing decades of the twentieth century, with total support to the sector exceeding 5 percent of GDP in some years. The following study attempts to throw light on this enigma.

Overview of the Turkish economy and agricultural sector

By way of background, this section first summarizes developments in Turkey's macroeconomy over the past half-century before looking more specifically at the agricultural sector.

Macroeconomic developments

Trends in agricultural policy over the review period are closely linked to the evolution of the economy as a whole, and cannot be assessed in isolation from the macroeconomic context. The period from the 1930s to 1950 was characterized in Turkey by state control of the economy and public services (etatism). The 1950s saw a shift towards more liberal domestic and external economic policies, which led to macroeconomic instability that required strong stabilisation measures before the end of the decade. Five-year economic plans began in the early 1960s, and for two decades the economy followed import substitution policies.

After a severe economic crisis in the late 1970s, there was a switch to export-led growth policies and progressive trade liberalization. Thereafter, four sub-periods can be distinguished: 1980-88, 1989-94, 1994-99, and from 2000 until the present. The 1980s began with a period of post-crisis rehabilitation, under a 3-year military government. The 1980 stabilisation package included a large devaluation, together with stringent measures to curb inflation (running at over 100 percent) and to reduce a public sector borrowing requirement of 10 percent of GDP. Policies throughout the economy were targeted on export promotion and structural adjustments whose burden fell heavily on wage labor and agriculture. The share of manufactures in exports rose sharply, and manufacturing profit margins increased (Taymaz 1999). It was a period of low growth but relative stability for agriculture. During this period, the strict import controls, which had operated under the previous import substitution program, were gradually relaxed -- including those for agricultural commodities.

Macroeconomic changes in response to populist pressures improved real wages significantly in the period 1988-1994. Agriculture shared in this trend, and saw its border protection and output subsidies significantly increased. Currency convertibility and deregulation of the capital market in 1989 allowed the authorities to resort increasingly to international capital markets to finance chronic budget deficits. Interest payments on escalating foreign debt pushed

up total spending requirements. As Demir (2002) points out, distributional conflict, in which groups disadvantaged by post-crisis measures attempt to restore their income shares, was not new in Turkey's 20th century history, but for the first time it took place in the context of full capital account liberalization. The result was that the period from the latter 1980s until 2001 was marked by more unstable macroeconomic cycles, with two major currency collapses and deep recessions.

Growing deficits and exchange rate pressure continued until the economic meltdown of early 1994, which involved a massive currency devaluation and a new stabilisation package. International agencies downgraded Turkey's credit worthiness, restricting its external borrowing. From 1994 to 1999, the rest of the economy entered another period of export promotion built on a low wage policy. This time the agricultural sector did not bear the heaviest burden of adjustment: its border protection increased for a number of key products, and spending on the sector appeared to run out of control. In fact, during this particular cycle, the budgetary burden of spending on agriculture actively contributed to the impending macroeconomic collapse.

During the second half of the 1990s, the government resorted increasingly to Central Bank borrowing for finance, fuelling inflation and spiralling interest rates. Before long the government had also returned to the international money market. By 2000, the ratio of interest payments on government debt to tax revenues was 77 percent, and in 2001 public debt was 91 percent of GNP (OECD 2002).

Starting in 1999, several financial crises triggered another program of structural adjustment for the economy as a whole¹, in which agricultural policy reform had a prominent role. In early 2001, the 3-year exchange-rate based stabilisation program backed by the IMF collapsed, only 14 months after its launch, the crawling peg was abandoned and the Lira was floated. In 2002, Turkey experienced its deepest recession since the second world war (Demir 2004; Akyüz and Boratav 2003).

The underlying causes of these cyclical patterns are complex. One is the apparent difficulty of establishing a secure, broadly based source of tax revenue. Various authors have documented the consequences of the 'tax impotence' of successive Turkish governments (see, for example, Candemýr 1994; Harrison, Rutherford and Tarr 1993). In particular, an inability to tax corporate profits and capital appropriately has meant that middle- and lower-income groups

are taxed disproportionately. This has discouraged labor force participation, with participation rates below 50 percent of the working-age population. Furthermore, over half the workforce operates in the informal (unregistered) economy, thereby further reducing the tax base (OECD 2004). Another consequence is that methods of public finance, together with inefficient credit allocation, have for years crowded out private investment and held back productivity growth and job creation. This has impeded mobility out of agriculture and deepened rural poverty.

A pre-condition for coherent agricultural policies is macroeconomic stability: without it, prices cannot act as reliable signals and longer-term strategies for investment and development are thwarted. This pre-condition has not been consistently met in recent decades.

Macroeconomic instability also has implications for the measurement of sectoral distortions. Against such a background, conventional methodologies for measuring distortions cannot easily distinguish between intended policy-induced effects or the desired outcomes of successful lobbying, on the one hand, and the fortuitous or unplanned results generated by unpredictable or uncontrollable cyclical movements on the other hand. This should be borne in mind in the following sections of the study.

Turkey's agricultural sector

Turkey uses 38-41 million hectares of land for agriculture, of which 22-26 million hectares are cultivated and the rest is permanent pasture, including common grazing lands. A wide variety of agricultural commodities can be produced in Turkey's diverse climatological and topographical conditions. Fruit and vegetables account for over 40 percent of the value of sectoral output, and field crops for one third. Over half the cultivated land is used for cereals. High-value protected crops are grown on about 50 thousand hectares. Livestock products comprise less than a quarter of total output value.

Structural and resource weaknesses have hampered the performance of the sector for decades. Nearly two-thirds of farms are smaller than 5 hectares. Farms at all points in the size spectrum tend to be fragmented, with nearly one-quarter consisting of six or more disjoint parcels. Average parcel sizes have continued to decline in recent decades. Turkish inheritance law is a major factor in this trend. Investment per worker and per hectare is low, and yields for

¹ According to Demir (2002), it was the seventeenth IMF rescue package for Turkey in 54 years.

field crops and livestock are comparable with those of extensive farming systems in Australia or Argentina. In 2003, 18 percent of the agricultural workforce was illiterate (8.5 percent of males, 28.5 percent of females), and only 11 percent of people working in agriculture had progressed beyond primary school (OECD 1994; Dervis et al. 2004).

Regional economic inequalities are marked in Turkey and have been increasing. Average per capita GDP in the richest of Turkey's 26 regions is over 5 times higher than in the poorest region, with prosperity tending to decline as one moves from the Northwest towards the East and Southeast. This is matched by inequality in educational attainment, health status and provision, and life expectancy. The World Bank (2000) found that low incomes in the poorest regions were due mainly to the large share of agriculture in their local economies. However, whereas productivity appeared to be improving faster in the poorer regions for non-agricultural sectors, the reverse was true for agriculture where the productivity gap between poorer and richer regions was increasing. Rather than helping to redress this imbalance, agricultural support throughout the period has been biased towards richer regions and larger farmers.

Although the majority of holdings produce for subsistence and for local informal markets, some areas and sub-sectors are fully integrated into national or international markets. The horticultural sector, concentrated in the Southern and Western coastal areas, competes successfully in export markets.² Poultry production has increased more than four-fold since 1980, and the sector is characterized by modern production units operating to EU standards.

A similar duality is observed in the food supply chain. A significant share of output, particularly for livestock products, bypasses formal marketing channels altogether. Traditional marketing chains typically have a number of intermediate stages operated by small enterprises with weak financial structure and lacking modernised handling facilities. The processing sector suffers from low capacity utilisation. Marketing channels for some commodities have been dominated by inefficient parastatal enterprises for decades. At the same time, supermarkets and discount stores are gaining ground (Sirtioglu 2004; van Berkum 2005), although producer contracts and integrated chain management are not yet widespread.

Figure 2 shows the evolution of Turkey's agricultural trade flows. The agricultural trade balance is always in surplus, whereas total trade typically shows a deficit. Agriculture's shares in

² Turkey has been the world's third largest exporter of fruit and vegetables, after the USA and EU-15, for many years.

exports and imports were 88 and 21 percent respectively, and have fallen steadily to 9 and 5 percent in 2004. These sharply declining shares are consistent with rapid growth in the rest of the economy.

Agricultural policies

Agriculture has been heavily supported in Turkey for decades. The main policy instruments have traditionally been output price support and input subsidies, against a background of high border protection. This section describes the institutional setting, trade measures used and domestic policy instrumentation.

Institutional setting

The aims of Turkey's agricultural policies, as set out in successive Five-Year Development Plans, have focused on securing the availability and stability of food supply, enhancing output and yield growth, raising self-sufficiency and exploiting export potential, providing stable and sustainable income levels in agriculture, and fostering rural development. Each Plan has set targets and guidelines for achieving them. Formal authority for the formulation of annual programs involving specific agricultural policy measures resides with the Council of Ministers, in consultation with the ministries concerned, the State Planning Office and the Treasury. The prime responsibility for implementation belongs to the Ministry for Agriculture and Rural Affairs (MARA), with some responsibilities allocated to the Ministry for Industry and Trade (MIT) and the Ministry of Finance.

A key group of institutional players in the agricultural policy arena have been the state economic enterprises (SEEs). It is important to note that SEEs flourished extensively throughout the Turkish economy during most of the period under review, until the recent wave of full or partial privatizations.³ In agriculture, the earliest SEEs date from the 1930s (TMO for grains, TSFAS for sugar) and the 1940s (TEKEL for tobacco, agriculture and salt, TZDK for fertilizer

³ In the 1950s, SEEs had a 50 percent share of value added in Turkey's manufacturing and a 'virtual monopoly' in other sectors (Flam 2003). Collectively, SEEs had nearly 600 thousand employees in 1990 (Candemýr 1994).

and other inputs). EBK (meat and fish, later also poultry) and the Feed Industry Corporation were created in the 1950s, SEK (milk) in 1963 and ÇAYKUR (tea) in 1971. The OECD (1994) estimates that, for the period 1980-1992, the state-owned sector purchased 100 percent of sugar beet, and depending on the year, 40-85 percent of the tobacco supply, 10-40 percent of the marketed output of wheat, and up to two-thirds of marketed barley. Purchase prices were fixed by the government, and SEEs were subject to rigid protocols on trading operations.

SEEs carried out manufacturing and commercial activities on behalf of the state, in line with strategic plans and annual directives from relevant government bodies. Beginning in the early 1980s, some SEEs lost their monopoly or monopsony powers, and there was a move to allow SEEs more autonomy in fixing prices. However, as government retained its right to set prices, until recent years SEEs were not managed fully in line with commercial principles. SEEs have also played a significant role in providing social services (social security, housing, guaranteed employment) (Demir 2002).

The trading losses and capital needs of these organisations were regularly met from public funds. For the years 1991-95, the annual average duty losses of TMO, TEKEL and TSFAS taken together were USD 622 million, and they rose to an annual average of over USD 1.7 billion during 1996-2001. In addition, the government began writing off the debt of agricultural SEEs in the mid-1990s. The average annual debt write-off for TMO, TEKEL, TSFAS and ÇAYKUR during 1996-2001 was USD 550 million, whilst equity injections from the Treasury to agricultural SEEs averaged USD 150 million during the same period. Agricultural SEEs' pricing policies tended to reflect the political cycle. In pre-election periods, increases in selling prices were held below the rate of inflation, catching up only months later. Such practices were one of many factors contributing to their losses.

For most of the second half of the twentieth century, Agricultural Sales Co-operatives Unions (ASCUs) also played a key role in the implementation of agricultural policy. ASCUs date from the 1930s, and mostly cover just one product, including important crops such as cotton, hazelnuts, sunflower, olive oil, raisins and sultanas. They provide warehousing, primary and/or secondary processing, packaging and marketing services to their members. According to OECD (1994), during the period 1980-1992, the three cotton ASCUs purchased between 24 and 92 percent of annual marketed output. For hazelnuts, sunflower seeds and soybeans, the relevant ASCUs' share reached 60-70 percent during that period. In 1993, there were 17 ASCUs with 387

member co-operatives (ASCs), and 685 thousand individual members. The ASCs were controlled by their respective ASCU, acting as its agents and having little autonomy or direct farmer control. By 2000, the number of ASCUs had fallen to 16 and member co-operatives to 330, whereas individual membership stood at 750 thousand and ASCUs and ASCs together had over 16.5 thousand employees.

In the early 1960s, the state began to use ASCUs as agents for the support purchasing of a few commodities, and product coverage increased in the following years. The relevant legislation was amended to formalise this role for the ASCUs in 1985. ASCUs could obtain subsidised credit for part of the cost of support purchasing, and any duty losses were covered by government. ASCUs were also instrumental in channelling subsidised inputs to farmers. After 1994, ASCUs still declared prices to their members, although these prices were not set by government and purchasing was no longer done on the government's behalf. However, the government still appointed ASCU directors and key staff. Budget transfers to ASCUs for the years 1995-2000 averaged over USD 600 million per annum.

Agricultural Credit Cooperatives (ACCs) and the state-owned Agricultural Bank also played a role in policy implementation, providing concessional credit to the industry. The Agricultural Bank dealt mainly with large farmers, SEEs and ASCUs, while the ACCs focused on smaller farmers. In 2000, the Agricultural Bank was restructured as 'a joint-stock company whose structural and operational characteristics are those of a private sector concern but whose capital happens to be state-owned' (Ziraat Bank 2003). The network of the ACCs extends throughout rural Turkey. Their main role over the period has been to supply farm inputs, usually on a credit basis. Losses due to repayment default and inefficient management were covered by payments channelled through the Agricultural Bank.

Agricultural trade policy

A crop failure in 1954, coupled with difficulties in expanding agricultural output and monetary expansion, led the government to introduce a stabilization program in 1958. A military intervention in May 1960 terminated democratic party rule, and the new era of Five-Year plans began. With the start of the First Five-Year Plan (1963-67), import substitution became the official development strategy. Under the import substitution regime, most agricultural products could only be imported by a SEE. Moreover, only SEEs could import agricultural inputs such as

fertilizer and pesticides, often at an advantageous (i.e. overvalued) exchange rate. In January 1980, the first steps towards liberalizing this regime were taken: two sets of products (“liberalization lists”) that could be imported were designated. Products not appearing on these lists were still controlled by quotas, which were abolished in 1984. The liberalization lists were then replaced by three lists designating, respectively, prohibited imports, goods requiring an import permit and goods that could be imported without restriction. Agricultural products could be found on each of the three lists.

A system of product-specific customs duties was set up, complementing several umbrella levies (such as the Support and Price Stabilisation Fund⁴ (DFIF) levy) that had already been introduced in the early 1980s with a revenue-raising objective. Additional special levies were added later in the decade, including the so-called Mass Housing Fund⁵ (MHF) levy. By the early 1990s, in addition to regular customs duties, agricultural imports were generally subject to stamp duty (at 10 percent of cif value), wharf tax (at 5 percent of cif value inclusive of customs duty and some other charges), the so-called municipality share tax (15 percent surcharge on the customs duty), the SPSF levy (10 percent of cif value) and the MHF levy (OECD 1994).

This complex structure, together with frequent changes in rates and coverage, characterized border protection over the period up to 1995. It is unclear to what extent its main purpose was to manage domestic markets, help producers cope with fluctuating adverse circumstances or raise revenue. The lack of transparency in such a system makes the net extent of border protection hard to evaluate. Ad valorem equivalents (AVEs) for selected products and years in this period are displayed in Table 2. Clearly, for many products, the applied MFN (most favoured nation) tariff provided only a small part of the total border protection.

In 1990, the list of goods requiring permission to import was abolished, and in theory all but six agricultural products could be freely imported. In fact, non-automatic, time-delimited import licenses were still required for a wide range of ‘sensitive’ agricultural products.

At the start of the implementation period of the Uruguay Round Agreement on Agriculture (URAA) in 1995, all border levies were converted to tariff equivalents and bound. Table 2 shows the applied MFN tariffs for the same selected products for 1997 and 2003, and the

⁴ An extra budgetary fund that was used, among other purposes, to fund export subsidies and subsidies on agricultural inputs.

⁵ A specific import tax, varying by product, created as a source of extra-budgetary funding following the Housing Fund Law of 1984.

target tariff binding at the end of the 10-year implementation period.⁶ Import licences as such are no longer required for most products⁷, although import approval procedures and inspection controls apply.

Non-tariff barriers against red meat were intensified in the early 1990s, first by restricting imports to unprocessed meat in 1990, and then in 1992 by requiring slaughterhouses shipping red meat and poultry to Turkey to be inspected by Turkish officials (OECD 1994). Since August 1996, Turkey has operated an outright ban on red meat imports. Restricted imports of breeding cattle have been allowed since 1999, but the ban remains in force for meat, feeder and slaughter animals. This ban has been challenged on various occasions in the WTO and is officially defended on sanitary grounds, in particular with respect to BSE risks (Burrell 2005). Turkey's per capita consumption of all meat (including poultry) is about one quarter that of EU-15.

Under Turkey's import substitution program of the 1960s and 1970s, exports were strictly controlled. During the 1980s, regulations pertaining to agricultural exports were gradually simplified. Export levies on high-value products like angora wool, dried fruit and nuts, for which Turkey has a large world market share, had been brought in during the 1960s with the aim of raising revenue. These levies were gradually abolished or allowed to erode in value, and had completely ceased in 1995. During the 1980s, exports of a few products (cotton, some cereals including wheat) were alternately taxed or subsidised, apparently according to domestic supply management criteria. Commodities traded by SEEs regularly received implicit subsidies as the Treasury covered their duty losses (including losses on external trade operations). The implicit export subsidies paid in this way in 2000 are estimated at EUR 8 million for barley, EUR 225 million for sugar, EUR 10 million for tea and EUR 100 million for tobacco (Grethe 2004). Other products received subsidies on an occasional basis. In addition, exporters of either unprocessed or processed agricultural products were able to receive export credits of up to 50 percent of the fob value of the consignment at interest rates often well below the rate of inflation.

Turkey's URAA schedules list 44 products on which export subsidies may be given, subject to volume and expenditure bindings. In recent years, subsidies have been paid on only 16

⁶ Under the URAA, Turkey's tariff bindings had to fall by an average of 24 percent over 10 years, with a minimum 10 percent reduction per tariff line. Turkey opted for the minimum 10 percent reduction on many products, including a number of animal products, tea, most grains, flours and cereal preparations, a few vegetables and nuts, fisheries products, sugar and unprocessed tobacco.

⁷ But see the US complaint against Turkey regarding import licences for rice (WTO, 2005).

products, with the aim of ‘developing export potential’. Subsidies are paid on a fraction of each consignment, ranging from 18 percent (biscuits) to 100 percent (fish). Subsidies are not provided to exporters in cash, but rather in the form of deductions in payments to public bodies and corporations for items such as social security, insurance and telecommunications. Exporters have to present the necessary documentation to MIT, which arranges the refund with the public organisation from the central budget.

In January 1996, Turkey and the EU formed a customs union. Since over half of Turkey’s agricultural exports are destined for the EU, and about one third of its agricultural imports come from the EU, the arrangements for agricultural trade with the EU need to be taken into account when assessing border protection for Turkey’s agriculture. Unprocessed and processed agricultural products, as well as fisheries products, remain outside the customs union. Turkey has set up tariff rate quotas for a large number of agricultural imports from the EU, but for most of them, the in-quota tariff reductions are very small. Of those products for which the in-quota tariff is significantly reduced or eliminated, fill rates tend to be over 100 percent, so these imports pay the MFN tariff at the margin. For imported processed products with an agricultural and an industrial component, the industrial component is treated in line with the provisions of the customs union, whereas the agricultural component is taxed according to Turkey’s own schedule for that product.

In 2001 Turkey’s agricultural exports to the EU comprised products with no MFN barrier (7 percent by value), those with an MFN barrier and for which Turkey receives no preferential treatment (2 percent), those with an MFN barrier which is reduced for Turkey (36 percent), and those where the MFN barrier is completely waived for Turkey (54 percent) (Grethe 2004). Turkey continues to subsidise exports to the EU for products that are not in free circulation within the customs union.

Domestic agricultural policies

For decades, the main agricultural policy instruments used were price support for crop products and input subsidies. Input subsidies became heavily used in the early 1960s when the government began to promote agriculture through subsidies for credit, agricultural chemicals,

seeds, and irrigation. In the early 1970s, fertilizer was added to the list of subsidized inputs. By contrast, livestock production has been supported mainly by border measures.

Although the rates of support on products and input use fluctuated considerably prior to 2000, there were no fundamental changes to the kind of policies and delivery mechanisms used. In 2000-2001, an ambitious program to restructure domestic agricultural policy began, involving policy re-instrumentation and reduced budget outlays. The following paragraphs describe in more detail the policies in place up to 2000. The most recent period is then discussed.

Intervention buying of commodities at support prices began in the early 1930s with wheat. Other grains, cotton and tobacco were added in the 1940s. With the first Five-Year Plan (1963-67) the number of crops supported in this way rose to nine, and by the early 1970s it had reached 30. The reforms introduced in 1980 brought the number back to 17, and the share of price support in agricultural GNP declined. By 1990, only 11 commodities were covered (wheat, barley, rye, maize, oats, sugar beet, tobacco, mohair, silk cocoons and poppy seed) but by 1992, with the addition of some horticultural crops and pulses, soybeans, groundnuts, sunflower seeds and rice, the total number of crops with price support was up to 25 (OECD 1994). In 1992, the total cost of agricultural subsidies was USD 3.1 billion, with the greatest shares taken by wheat (13 percent), cotton (22 percent), tobacco (18 percent), sugar beet (17 percent), hazelnuts (9 percent) and sunflower seed (8 percent). By 1999, the total cost of commodity price support alone was over USD 4 billion (about 2.2 percent of GDP) (World Bank 2001).

Intervention buying was operated by the SEEs (grains and pulses, sugar, tobacco, tea) and the ASCUs (horticultural crops, cotton, oilseeds, nuts, olive oil). Support prices were announced *after* planting, and payments were usually made one year or more after harvest and delivery. The short-run production incentives provided by these payments were weakened by the timing of the price announcement, and by the fact that high rates of inflation throughout the period eroded their value and exacerbated real price uncertainty. However, the sustained use of these measures over time undoubtedly distorted regional cropping patterns, supported inefficient production structures and shielded the sector from competitive forces.

Once announced, support prices could not be adjusted for changes in market conditions during the growing season or post-harvest, and many did not reflect differences in product quality. SEEs had to act as guaranteed buyer of last resort, so that when purchases exceeded storage or processing capacity, they made distress sales on the world market. The statutory

conditions regulating TMO's operations prevented it from passing on transport, handling and storage costs when grain was resold on the domestic market. Such constraints, plus the overstaffing and lack of incentive to operate efficiently induced by soft budget constraints, help to explain the huge losses of the parastals.

Controls on area planted were introduced for three commodities (hazelnuts, tobacco and tea) in the mid-1980s, under the authority of the relevant ASCU or SEE. They worked badly due to ineffective enforcement (OECD 1994). Stricter controls and compensation-backed incentives were adopted in 1994. From 1994 onwards, tea growers were also required to cut back part of their plantation each year, in order to improve the quality of the leaf. A 'pruning premium' was introduced to compensate them for lost volume. Over the period 1996-2000, tea pruning payments averaged USD 17 million annually. In addition, informal area controls operated for sugar beet.

By contrast, the livestock sector has had little direct intervention. Since 1986, producers delivering milk to dairies that are certified as meeting certain technical standards have received an extra payment per litre, the 'milk incentive premium'. This premium is currently less than 10 percent of the domestic milk price and is paid on around 25 percent of total production. Otherwise, support for dairy products has been provided by border measures. Currently, tariffs on most dairy products are bound at 180 percent (lower for some cheeses). Applied MFN tariffs were significantly below these bindings in the late 1990s, but moved closer to bound levels in the early 2000s.

Apart from temporary intervention buying of live animals in the drought of 1989, support for bovine meat has relied on border measures. In 1995, MFN tariffs on red meat stood at just 15 percent, but shortly afterwards was raised to 165 percent and are now at their bound levels of 225 percent. Since the ban on red meat imports in 1996, insulation of the domestic red meat market is virtually total. A meat incentive premium was paid in 1990-1, and again in 1994-5, per kilogram of beef and sheepmeat on animals delivered to abattoirs satisfying modern hygiene standards⁸.

Support to input use has been extensive. Incentives for capital investment were paid to farmers during the 1980-85 period largely in the form of reductions in customs duty on imported machinery and other tax deductions. From 1985 onwards grants were paid for various investment

⁸ It will be paid again in 2006 to boost low producer incomes, which have been hit by high feed prices and weak demand.

projects such as establishing feedlots. This form of aid ceased in 1994. MARA also funded on-farm development work (such as field levelling, soil improvements and so on), with costs averaging USD 23 million for 1986-90, USD 52 million for 1991-95 and USD million 63 for 1996-2000. This expenditure has continued at similar levels into the 2000s.

Until 1999, credit to farmers was heavily subsidised, and delivered either directly by the Agricultural Bank (or to sugar beet growers through the Sugar Bank, at that time, cooperative-owned) or indirectly through the ACCs and ASCUs. The government also provided cheap credit to the agricultural input industries. Rates to farmers tended to be 40-60 percent below commercial rates, and from the late 1970s until 1998, real interest rates on loans to farmers were negative. From 1986 onwards, larger interest concessions were given for livestock production. In 1992-93, for example, the real rate of interest on loans for crop production was -16 percent, and for animal husbandry -24 percent. In 1994 the average real interest rate on agricultural loans reached -45 percent (OECD 1994; World Bank 2004b). The use of credit subsidies to agriculture peaked in the period 1994-99, averaging over USD 1.3 billion per year. And yet, at the end of the 1990s, the ratio of agricultural lending to agricultural GDP averaged only 14 percent, well below the 30 percent typically observed in comparable countries (World Bank 2004b). The Turkish Competition Authority has estimated that two-thirds of small farms were using informal credit from illegal brokers.

World Bank (2004b, p.23) noted that from the mid-1990s cheap and abundant credit encouraged credit delinquency. It has been estimated that only 80 percent of the implicit subsidies reached farmers, due to the high administrative costs and inefficiency of the delivery agencies⁹.

As mentioned previously, subsidies for the domestic production and consumption of fertilizers began in 1961. Until 1986, ex-factory and farmer prices were controlled by the state at levels above and below the world market price respectively (Niron 1986). Fertilizer distribution was in the hands of TZDK and (for sugar beet growers) TSFAS, and their duty losses were met from government funds. In 1986, all restrictions on fertilizer imports were lifted, and prices were determined competitively in domestic markets, albeit still protected by tariffs. TZDK's share of

⁹ World Bank (2000) cites a claim by the Farmers' Association (TZOB) in 1997 that one in three or four borrowers of subsidised agricultural credit might not be farmers at all.

the fertilizer market fell from 90 percent in 1985 to 10 percent in 1992 (OECD 1994). At the end of the 1990s, 35 percent of the fertilizer sold to farmers was marketed by ACCs.

From 1986 onwards, fertilizer subsidies were paid by government to fertilizer distributors via the Agricultural Bank. For a brief period (1994-97), subsidies were paid direct to farmers, upon presentation of the sales invoice, but this was reversed due to the scheme's administrative burden and susceptibility to fraud (World Bank 2004b).

During 1990-97 annual expenditure on fertilizer subsidies averaged USD 363 million. The fertilizer subsidy was 39 percent of the market price in 1993, and 50 percent in 1997. The ratio of farmer price to import price over the period did not reflect these high rates of subsidy, *except* during the period 1996-97 when subsidies were paid direct to farmers. In fact, during 1990-95, the farmer/import price ratio fluctuated between 78 and 108 percent. In 1997, the government began phasing out the fertilizer subsidy, and it ceased completely at the end of 2001 (World Bank 2004b).

Agriculture's use of pesticides has been supported in two ways. First, the government assumes the cost of protective measures taken when epidemic crop diseases or pest infestations occur. Second, from 1987 onwards the Agricultural Bank was authorised to pay a rebate of 20 percent on the value of pesticides bought by farmers themselves. Over the period 1996-2001, annual disbursements by government on this item averaged 26 million dollars.

Starting in 1985, a subsidy was paid to certified producers of hybrid maize, hybrid sunflower, soybeans and nitrogen-fixing bacteria (OECD 1994). Total payments under this scheme fell during the 1990s from their peak of USD 31 million in 1987 to low levels in the early 2000s. Subsidies have also been paid to farmers, at various times, for seeds and animal feed.

Ownership and exploitation rights for water are vested in the state. There has been considerable public investment in irrigation since the 1960s, expanding the irrigated area by about 800 thousand hectares per decade. More than 4.9 million hectares are now irrigated. Irrigation schemes are under the responsibility of the General Directorate of State Hydraulic Works (DSI) for large-scale schemes, and MARA for smaller schemes. During the review period, the management of the smaller schemes was generally transferred on completion to village cooperatives. By contrast, at the start of the 1990s, DSI was operating most of its schemes itself and attempting to recover operating costs, together with a contribution to capital

costs, from farmers. It is difficult to obtain data on the full cost of providing irrigation, or the amount of subsidy that farmers have received over the years in this respect. OECD (1994) described how farmers' payments for irrigation use were fixed too low in money terms, were further eroded by inflation and then undermined by poor recovery rates.¹⁰

In 1993, DSI began transferring operation and maintenance of its schemes to Water Users' Associations (WUAs), semi-public bodies that are set up under Municipality Law with leadership consisting of elected members and local officials. Most of the 1.6 million hectares transferred by DSI to water users' groups have gone to WUAs. After transfer, WUAs are expected to recover all operating and maintenance costs from farmers. Where such management transfers have taken place, operation and maintenance costs have fallen by about 40 percent, and yields from irrigated land are reported to have risen by 60 percent (World Bank 2004b).

Agricultural policy reform, 2000 to 2005

In 2000, as part of the seventh Five-Year Development Plan, the Turkish government adopted an ambitious program of agricultural policy reform. It involved not only the reinstrumentation of policy and a change of policy delivery systems, but also the dismantling or fundamental reform of failing agricultural sector institutions. Price-fixing by government was discontinued. Product and input subsidies were phased out, and replaced by direct income support (DIS). SEEs were to be restructured and privatised, and ASCUs would become financially autonomous member-controlled cooperatives. To underpin this reform, a World Bank loan of USD 600 million was secured to help fund DIS payments and incentive payments to shift farmers out of producing surplus commodities (World Bank 2001). Activities under this loan agreement constitute the Agricultural Reform Implementation Project (ARIP).

The initial impacts of the reform were substantial. On the output side, real agricultural prices fell by 13 percent between 1999 and 2002 alone, and by 22 percent relative to non-agricultural prices (World Bank 2004b). Surprisingly, price falls were greater in the livestock

¹⁰ OECD's PSE database shows subsidised electricity and water in connection with irrigation schemes varying between about USD 8 and 33 million over the period 1986-96, between about USD 40 and 60 million between 1997 and 2002,

sector, which previously received virtually no price subsidies, than for crops. This is a reminder that not all the price fall was due to agricultural policy changes: demand for livestock products was more vulnerable to the deep economic recession of the early 2000s, because of the closed markets for these products and their higher income elasticity of demand.

Subsidies for fertilizer and pesticides disappeared in 2001 and 2002 respectively. The phasing out of credit subsidies was completed by 2002. Table 3 indicates that, after a temporary drop, the aggregate use of fertilizer and credit rebounded to or exceeded previous levels.

Farm incomes fell by 16 percent between 1999 and 2002,¹¹ four fifths of which was due to subsidy removal and the remainder to a 4 percent reduction in output (World Bank 2004b). The DIS payment was not intended to compensate producers fully for price cuts, nor to relieve rural poverty, but rather as a transitional measure to cushion the immediate impact of reform on farm incomes. It has been estimated that, on average, DIS payments compensated farmers for about half their short-term income loss (World Bank 2004b). DIS is inadequate to compensate the income loss of many intensive fruit and vegetable producers, whose area is small and who have lost disproportionately on fertilizer and pesticide subsidies. However, DIS compensation has been more adequate for farmers in the poor regions of the East and Southeast, where pre-reform incomes and subsidised input use were lower and farm sizes tend to be larger (Bayaner and Bor 2006). Table 4 gives an overview of the scheme up to 2005.

Implementation of the DIS program has been slowed down because the national land registry is not complete in rural areas. To implement the scheme, MARA has built up its own Farm Registry System (FRS). Not all the 17 million hectares registered in the FRS is covered yet in the national land registry. Inability to prove ownership of land, and disputes concerning ownership, are given as reasons for the incompleteness of both these registration systems, and the resulting incomplete coverage of the DIS scheme. The 50-hectare ceiling for payments has led to some larger farms being divided amongst family members (Bayaner and Bor 2006).¹² Thus, this relatively decoupled measure whose distortionary potential was considered to be small may nevertheless introduce unexpected secondary distortions.

thereafter falling to under USD 2 million for 2003 and 2004.

¹¹ By US\$2.7 billion, or \$1.25 billion after payment of DIS (World Bank 2004b).

¹² Since farms above 50 hectares are required to keep books and be assessed for income tax instead of paying a flat rate, this incentive already existed.

Hard budget constraints were imposed on the SEEs and ASCUs. TMO now functions as a commercial organisation in the grain sector: its annual price declarations are based on domestic and world market expectations, and are independent of government. Real producer prices for cereals had been falling since their peak in 1996, but this trend appears to have bottomed out in the post-reform period. At the start of the reform, sugar and tobacco support prices both fell by 20-25 percent. Since the early 2000s, prices for these commodities have been set by agreement between growers and processing factories. For sugar beet, a quota scheme similar to that of the EU, with A, B and C quota (for export only, amounting to 1-2 percent of production), was introduced in 2001: quota rights are allocated to factories, and transferred to individual farmers. Sugar beet deliveries fell by 25 percent in the first two years of the reform, and have fluctuated since then. Tobacco area restrictions are more strictly enforced than hitherto, which, together with the price falls, has brought production down to less than half of its 1993 peak of 340 thousand tons. ÇAYKUR now has a reduced role as a tea-processing enterprise. Despite the intention to discontinue the tea-pruning payment, it was stopped for the 2004 crop only. Prices for cotton, sunflower seed and soybeans were less affected as price premiums continued for these products, although it was initially intended that they too would be removed (World Bank 2001).

Restructuring measures have been less successful. The ARIP incentive scheme to shift farmers out of surplus crop production was applied to the tobacco and hazelnut sectors. In both cases, uptake was poor. Tobacco farmers had already reacted to price falls by switching 60 thousand hectares out of tobacco in 2000-1, before the ARIP compensation payments became available. Hazelnut producers have been reluctant to grub up established orchards and less than 1 percent of the target 100 thousand hectares was abandoned (World Bank 2004a). In the second instalment of the ARIP loan, the scope of funds earmarked for farmer transition was broadened to cover village-based participatory investments under the new Rural Development plan (e.g. small-scale cooperative processing, storage, village cooling facilities), capacity building for farmers' organisations, and farmers in environmentally fragile areas who want to switch out of crops in over supply.

Privatisation of some of the largest SEEs has been slow. For example, by the end of 2006, of the five original units of TEKEL (alcohol, tobacco and salt), only the alcohol enterprise had been sold, and the cigarette enterprise had gone for tender twice unsuccessfully. Only two of TSFAS's initial 27 sugar factories had been privatised, with another three included in the

privatisation program for 2007. The infant private sugar processing sector had just six factories, operating with more modern technology and flexible marketing strategies. By contrast, the factories remaining in the state sector have old technology and low capacity. With the expected expansion of the private sector, it might be rational simply to scrap some existing TSFAS capacity. However, the least viable production units tend to be in the poorest areas, and their disappearance would have a high social cost. This situation exemplifies some of the difficulties encountered by attempts to reduce distortions by dismantling an outdated state sector.

The early budgetary impact of this reform program was spectacular: a net cut in agricultural subsidies (after DIS payments) of 2.3 percent of GDP (USD 5.5 billion) (World Bank 2004b). As expected, it has not been possible to sustain this rate of cut as coverage of DIS payments has increased, and the financial burden of cleaning up the parastatals is still continuing.

In its assessment of the ARIP loan, the World Bank (2001) identified two sets of concerns related to the project's aims. Regarding the transition of the ASCUs to fully fledged market-oriented trading companies, it was uncertain whether farmer members would want to take over control, and whether some ASCUs might prove unfit to survive in competitive markets. As of 2006, all 16 ASCUs were still operating commercially and independently of government, with ASCU directors appointed by owner-members. Over-staffing was lower, and existing ASCU debt was still being rescheduled in exchange for restructuring compliance.

The World Bank appraisal also identified as ‘substantial’ the risk of a ‘political backlash’ as long-standing support was withdrawn from well-established client groups, creating ‘pressure for reversal or non-implementation of measures, or starting new subsidy schemes’. The reform program has entered a phase where the risk of such pressures accumulating is higher, and recent developments are not wholly encouraging. As already mentioned, price premiums are still paid on cotton, oilseeds, and olives, and are scheduled to continue until 2010. Maize started receiving a premium in 2006, and other payments based on output were introduced for cereals in 2007. In 2004, some concessional credit became available again (about USD 30.5 million in 2004), albeit under strict conditions that target producers aiming for higher quality output, such as those producing according to EurepGAP protocols or using higher quality livestock breeds). In 2006, a new insurance subsidy was introduced, which is open to all producers regardless of commodity produced. Under this scheme, the state reimburses 50 percent of insurance premiums direct to the insurance providers. In 2006, the scheme was operating in just 90 of the poorest districts, out of a

total of 950 districts. The Agricultural Strategy adopted at the end of 2004 as part of the next Five-Year Development Plan appeared to re-couple part of the DIS payment to particular schemes and targets, although details were not given; the ‘fertilizer payments’, based on land area with rates varying by product groups that were introduced in 2007, are in line with this intention. As of May 2006, the rate of DIS payment for 2005 had still not been announced, which suggests a falling behind with this commitment to farmers that may harden attitudes against continuation of the reform. It is unclear whether these departures from the general principles of the reform might be first signals of the ‘backsliding’ that the World Bank identified as a risk.

Estimates of distortions since 1961

Inflation of the Turkish Lira (TL) averaged about 40 percent per annum during 1960-2004, which hampers interpretation of nominal values. Monetary amounts reported in this section have been converted to constant 2004 values using the GDP deflator. In January 2005, Turkey reformed its currency, replacing the Lira (TL) by the New Turkish Lira (YTL), with a conversion rate of 1 YTL= 1,000,000 TL. To facilitate interpretation, figures in constant 2004 values are expressed in their YTL equivalent, although the YTL was not the official currency until 2005.¹³

Annual producer and border prices, and NRAs, are reported in the Appendix, with the FAO being the source up to 1985 and the OECD thereafter.

Import protection and support for agricultural and other products

First, we give a snapshot of recent average protection rates for agrifood products, relative to other sectors. In 2004, average trade-weighted MFN tariffs were 40 percent for primary agricultural products¹⁴, 18.9 percent for processed food products and beverages, 1.9 percent for other primary products, and 3.2 percent for manufacturing (Togan 2005, Table 5). In 1996, on forming a customs union with the EU, Turkey aligned its tariffs for non-agricultural commodities

¹³ The official dollar exchange rate for 2004 (2005) (annual averages) were USD 1=YTL 1.426 (1.341).

¹⁴ For all agricultural products (WTO definition), the average trade-weighted MFN tariff was 21.4; the average applied tariff for agricultural products from the EU was 19.8, and for other preferential trading partners 21.2 (Togan 2005).

with the common external tariffs of the EU, which have been stable over the period at very low levels. Thus, for the last 10 years, there has been very little offsetting protection in other sectors to take into account when assessing the distortions in the agricultural sector due to agricultural tariffs (see also Figure 5).

We next examine intersectoral distortions as captured by the PSE and TSE estimates, which have been calculated by OECD for Turkish agriculture from 1986 onwards. The PSE represents the transfers from consumers and taxpayers to agricultural producers due to agricultural policies, and comprises market price support *plus* all direct payments from government to farmers. It is derived by calculating PSEs for individual products, which are then aggregated. The standard PSE products account for less than 50 percent of Turkey's agricultural output by value (Kasnakoglu and Cakmak 2000). To reflect the greater share of field crops and horticultural products in Turkey's output mix, potatoes, tomatoes, tobacco, grapes, apples and cotton are added into the calculation of aggregate market price support, which is then 'grossed up' to represent market price for the sector as a whole. This extended product selection covered about 58 percent of output in the late 1980s, and thereafter about 63-64 percent.¹⁵ The Total Support Estimate (TSE) consists of the PSE (Producer Support Estimate) and the GSSE (General Services Support Estimate), the latter being non-commodity-specific transfers to the agricultural sector as a whole, not accruing directly to farmers.

Figure 3 shows that total agricultural support has fluctuated in line with macroeconomic cycles. The increase after 1988 reflects the shift in income distribution towards workers and farmers as Turkey emerged from the economic restraints set up after the 1980 crisis. The sharp falls in 1994 and 2001 correspond to macroeconomic crises, which were characterized by strong currency devaluations (63 and 49 percent respectively against the US dollar) and negative real income growth (-4.7 and -7.5 percent respectively). In most non-crisis years, the PSE accounted for 80 percent or more of total support (Figure 3a). However, for 1995-2001, the GSSE took up over 30 percent of the total.

The GSSE involves transfers whose aim is to improve the functioning of the sector. Measures include investments in research and development, agricultural schools, infrastructure, marketing and promotion, and public stockholding. For the OECD countries as a whole, these

¹⁵ Although OECD member countries in Europe and Oceania have a coverage well above 70 percent, the current PSE coverage for the USA and Japan is on a par with that of Turkey.

measures contribute almost 20 percent of total support. These are considered relatively benign transfers whose potential for distortion is undefined but thought to be low. By contrast, in Turkey, the GSSE has consisted largely of bail-out payments to the SEEs and ASCUs. During 1995-2002, these payments never fell below 85 percent of the GSSE, and over the same period they averaged one third of total support. Even since the 2000-1 reform, the cost of sanitizing these organisations continued to require considerable transfers.

How distortionary these transfers to SEEs and ASCUs were, and whose incentives they distorted, is difficult to discern. To the extent that duty losses arose because SEEs were required to act uncommercially (e.g. absorb transport costs, accept all produce offered, etc.) in order to assist farmers, then their losses amount to hidden producer subsidies. However, the parastatals' soft budget constraint and recurrent political interference in their functioning encouraged overstaffing and inefficiency (Olgun, 1991; Demir, 2002), and undoubtedly acted as a catalyst for rent-seeking and non-market-oriented behavior in the food supply chain. Moreover, the size of the transfers in the later 1990s meant that they were not neutral with respect to the macroeconomy. Thus, the distorting impact of this component of total support in Turkey has not been confined to agriculture, but it probably distorted *agricultural* incentives less than the total amounts would suggest.

The low farm support levels in 1994 and 2001 occur primarily because market price support was squeezed from above by falls in domestic producer prices, rather than by sharp increases in border prices due to currency devaluation or by marked changes in border protection. This raises the question of what is actually measured by this price gap and what factors determine it. The evidence suggests that, in these crisis years, domestic prices may have been affected by lower demand due to reduced incomes (certainly the case for livestock products, which have high income elasticities of demand) or that payments to farmers were reduced, whether to soften the impact of the crisis on consumer food prices, or because of cash flow problems of the parastatals. If the squeezing of the price gap is in fact due to internal demand phenomena or to slippage between announced policy measures and implementation, it is striking and informative that such large internal price movements were not corrected by price arbitrage between domestic and foreign markets. Whatever the case, one must be cautious in interpreting these gaps and their changes as the sole result of official policies and under the control of policy makers.

Relative to GDP, the peak in support in the early 1990s was slightly higher (7.3 percent) than the one occurring in 1998-99 (around 7 percent) (Figure 3b). However, it was the latter that triggered fundamental policy reforms. During the 1990s, there was a shift in the relative shares of support coming from (less ‘visible’) market price support and from the government budget (consisting of more ‘visible’ direct subsidies to farmers *plus* general support to the industry). In 1998-9 the latter reached historic levels both in real terms and as a percentage of GDP,¹⁶ and accounted for more than half of the total support.¹⁷ Given the government’s severe deficit financing problems, the situation was unsustainable. The need to control agricultural spending was yet another trigger for the urgent reform of public finance that began in 1999.

Nominal rates of assistance (NRA) for agricultural commodities

In accordance with the methodology as defined in Anderson et al. (2008), Nominal Rates of Assistance (NRAs) have been calculated for key products, based on price gaps. The price gap for an unprocessed commodity at the farm level is defined as the domestic producer price at farm level, *plus* all transport costs, handling costs and marketing margins incurred in getting the domestic product to the port, *minus* the relevant fob or cif price of the exported or imported equivalent product. Production subsidies and support granted to intermediate input use, such as fertilizer etc. are also taken into account. The price gap thus calculated is assumed to pick up the effect of all tariff and non-tariff barriers associated with an imported product, or export subsidies and other aids for an exported product. The resulting product-specific NRA represents the price gap expressed as a percentage of the border price. An NRA reflecting the protection or taxation of a country’s total agricultural sector is calculated via a weighted average of the individual products’ NRAs and of the ‘guesstimated’ NRA for the remaining commodities’ aggregate, using as weights the undistorted gross value of production. The NRA for total agriculture also includes non-product-specific support payments.

¹⁶ In 1999, it was 3.5 percent of GDP. For comparison, we note that in 2005 Turkey’s total educational spending was 3.5 percent of GDP, when over 20 percent of the population was between 5 and 15 years of age.

¹⁷ As a percentage of total expenditure from the consolidated budget, agricultural spending was 44, 37 and 42 percent in 1997, 1998 and 1999 respectively.

Due to the government's regulation of the foreign exchange market, a black market rate arose parallel to the official rate. In the 1960s the black market premium amounted to about 45 percent, but it declined subsequently and after the mid-1980s remained at very low levels. In order to account for these irregularities, an equilibrium exchange rate was calculated as the weighted average of the official and the black market rate, with weights based on an estimate of the proportion of foreign currency that is sold on the parallel market (see Anderson et al. 2008). The exchange rate distortion as a part of the protection to import-competing goods is then the difference between the exchange rate the importer faces and the equilibrium exchange rate. With regard to exportable products, the exchange rate distortion is measured by the difference between the exporter's exchange rate and the equilibrium rate.

The data for calculating the individual product's NRAs stem from two sources. For the period 1961-85, all information on prices and quantities is taken from the FAO agricultural database (FAOSTAT). For this time period no data on distortions with regard to intermediate input use, non-product-specific payments or production subsidies was available. Thus, NRAs for 1960-85 reflect a pure price wedge between the domestic producer price and the border price. Information for the remaining time period, 1986-2005, comes from the OECD's PSE/CSE database, and so output subsidies and payments based on input use are included in the calculated product-specific NRAs. More precisely, the latter include payments based on the use of variable inputs (fertilizer, hybrid seed, pesticides, etc.) and support coupled to the use of on-farm services and investments. Non-product-specific subsidies such as payments based on area planted and animal numbers, historic entitlements, input constraints, overall farm income and finally, miscellaneous payments are included only in the NRA for the total Turkish agricultural sector. Rice and hazelnuts are the only products not covered by the OECD PSE/CSE database. The data for these two commodities come from FAOSTAT even for the post-1985 period.

The information on data used for the calculation of the equilibrium exchange rate are obtained from Easterly (2006), which provides the official exchange rate as well as the black market premium for various countries for the period 1960-2005. In the absence of other information, the proportion of the foreign currency sold on the parallel market is assumed to be 50 percent in the years when the market was active because the official exchange rate was overvalued.

Nominal rate of assistance for non-agricultural commodities

For the purpose of intersectoral comparative evaluation, an NRA for the total non-agricultural tradables sector has been calculated in addition to the NRA estimate with regard to overall agriculture. This indicator is determined via NRA guesstimates for the import-competing, exportable and non-tradable parts of the total non-agricultural sector. The exchange rate distortion applying to importable and exportable goods – as explained above – is then added to the corresponding NRA guesstimate.

The data on non-agricultural distortions come from various sources. For the time period 1960-1983, they were taken from the precursor of this study which was conducted by Krueger, Schiff and Valdés (1991) (KSV). KSV used the average tariff on non-agricultural products as an approximation for the distortions to the non-agricultural import-competing sector, while for exportables and non-tradables (services) an NRA of zero was assumed. For the 1986-2005 period, further tariff information was taken from the World Bank's World Development Indicators (WDI). Since a complete time series of tariff data is not available, extrapolation was used from one data point to another. The division of the total non-agricultural sector into importables, exportables and non-tradables is based on assumed shares for importables and exportables, while for non-tradables we used the share of services in GDP.

Relative rate of assistance (RRA) and the trade bias index (TBI)

The Relative Rate of Assistance (RRA) provides an indication of the assistance to agriculture relative to the rest of the economy. As explained in Anderson et al. (2008), the RRA compares the total NRA for tradable agriculture with the total NRA of the tradable non-agricultural sectors.¹⁸ A negative RRA indicates that agriculture is either less subsidized or more taxed than non-agricultural industries, suggesting an anti-agricultural bias is in place, and conversely for a positive RRA. The Trade Bias Index (TBI) is calculated by comparing the NRA for agricultural

¹⁸ The Relative Rate of Assistance, RRA, is defined as: $RRA = 100[(1+NRA_{Ag}^t/100)/(1+NRA_{NonAg}^t/100) - 1]$, where NRA_{Ag}^t and NRA_{NonAg}^t are the average percentage NRAs for the tradables parts of the agricultural and non-agricultural sectors, respectively.

exportables with the NRA for agricultural import-competing products.¹⁹ Typically, this has been negative, reflecting a trade policy bias against agriculture.

Our calculated NRAs fluctuate considerably over the period. When the only support is via border measures, and providing horizontal and vertical price transmission is good, the price gap represents the tariffs and non-tariff barriers. In countries like Turkey with less well integrated markets and poor marketing and processing infrastructures, the component representing distribution costs and marketing margins for farm products may be substantial. If this component is underestimated, part of these costs will be confounded with the price distortion due to border measures. However, these margins are probably relatively constant or slowly trending, and it is unlikely that they have generated the sharp swings observed in the calculated price gaps for Turkey.

The domestic price-fixing mechanisms used by the Turkish government until 2000 could be expected to distort the relationship between domestic and border prices, if administered prices diverged from world market price trends. The extent of this distortion would depend on the degree of monopsony exercised by the state-controlled purchasing bodies (SEEs and ASCUs), and whether their market share varied markedly between years. If state purchasing bodies had only weak monopsony powers, then either the link between domestic and border prices would be quite strong (assuming good transmission between the border and domestic markets) or domestic prices would reflect internal market conditions (assuming weak price transmission).

Turning to the data, the price gap instability comes at least as much from producer prices as from border prices, and for the most part is unrelated to any changes in tariff levels. For the export commodities tomatoes and grapes, there is considerable movement in both border and producer prices, and the price gap fluctuates on both sides of zero. For wheat, oilseeds and poultry, the domestic price shows some response to border price in some sub-periods, but even then the response is weak and with a variable lag. Less surprisingly, for beef and sugar, movements of the two prices are unrelated. Little, and then no, foreign trade in beef meant complete isolation of the domestic market for this product, whereas for sugar there was little foreign trade *and* the first round purchasing conditions were close to a perfect monopsony. In general, transmission from border price to producer price is poor. It is unclear how much this is

¹⁹ The Trade Bias Index is defined as: $TBI = 100[(1+NRAag_x/100)/(1+NRAag_m/100) - 1]$, where $NRAag_m$ and $NRAag_x$ are the average percentage NRAs for the import-competing and exportables parts of the agricultural sector.

because policies themselves have acted so as to effectively cut the link with border prices, and how much it is due to exogenous factors like poor but variable price arbitrage within the country.

Figure 4 shows the development of the aggregate NRAs of import-competing, exportable and total products covered by this study. From 1961 to 1979, agricultural interventions experienced a steadily increasing trend, which is in line with the pattern of interventions in agricultural prices described above. In 1961, when the government's First Five-Year Plan was adopted, increased intervention in agricultural pricing followed. In addition to price interventions the government also expanded the coverage under the support purchase program and increased subsidies on inputs. From the beginning of the 1970s, subsidies to users of fertilizer were implemented. Within the 1970-74 period, import-competing agricultural sectors changed from being slightly taxed to being protected. This protection peaked with an NRA of 20 percent in the 1975-79 period.

The taxation of agricultural exports, shown by a negative NRA in Figure 4, also decreased during the 1961-1974 period, while in the following period a stronger negative trend can be observed again. The implicit taxation on agriculture as a whole was approximately 20 percent in the 1960s but decreased to 7 percent during the 1970s. The increase in taxation in the following five-year period (down to a rate of about 30 percent for agriculture as a whole) is predominantly the result of the acute macroeconomic stabilization phase between January 1980 and July 1981. As already mentioned, this period was characterized by a heavy currency devaluation and the reduction of input and production support programs. However, the pro-agricultural policy that emerged after November 1981 reversed that trend so that in 1985-89 agriculture experienced positive assistance again: NRAs for import-competing commodities averaged 28 percent while exportables were only slightly taxed (by 8 percent). Protection for agriculture overall averaged 4 percent, and increased to just over 20 percent throughout the 1990s and into the present decade, before rising in 2005 to 26 percent.

The development of NRAs for individual commodities is shown in Table 5. As described above, total agriculture was taxed from 1961 to 1980. The products subject to the highest levels of taxation were maize, tomatoes, tobacco, hazelnuts and apples (36-45 percent). Other crops such as sunflowers, barley, eggs and cotton also experienced negative NRAs but to a lesser extent (19-24 percent), while wheat and grapes show the lowest taxation (6-15 percent). The only products that received protection during this time period were potatoes and milk (4-41 percent).

Furthermore Table 5 shows that, over the period 1985-2005 as a whole, NRAs for dairy, beef and sugar were the highest (above 70 percent), followed by barley, eggs, poultry and potatoes (42-52 percent), and sunflowers, maize and wheat (32-39 percent). Finally, tomatoes, grapes, tobacco and sheepmeat received the lowest levels of support (5-20 percent).

With some low positive or negative NRAs, the export crops apples, hazelnuts and cotton were subject on average to taxation (6-46 percent) over the 1985-2005 period.²⁰ The NRAs for beef, potatoes, eggs and sugar have risen significantly, while protection and taxation for dairy and apples have fallen.

Table 8 summarizes the overall sectoral results with respect to agriculture and non-agricultural sectors. As previously explained, we follow the OECD's assumption that agricultural products not covered by this study were subject to the same level of protection or taxation as the commodities analyzed individually. Thus, for the years where no non-product-specific supports were in place, the NRA for the total agricultural sector is identical to the NRA of the covered products. As Table 8 shows, agriculture received non-product-specific support in the 2000-05 period, reaching 5 percent in 2005 (following the adoption of the DIS in 2001). Accordingly, for this period the NRA for agriculture as a whole (including product-specific and non-product-specific measures) is higher than the total NRA for the commodities covered.

Table 8 also reports the trade bias index (TBI) for Turkey, which is negative over the whole period whilst showing quite erratic movements. In the years from 1961-84, the reason for this steady anti-trade bias was the heavy taxation of agricultural exports whereas imports were either taxed less or slightly subsidized. The TBI remained strongly negative over the remaining periods even though taxes on exportables decreased significantly and even turned into subsidies. The negative trend in the TBI persisted because from the mid-1980s importables also became increasingly protected, so that exportables were still discouraged relative to import-competing products.

With regard to non-agricultural industries, Table 8 shows a high level of protection particularly in the period 1961-79. The peak in the later 1960s reflects the very high tariffs on importable non-agricultural products. Thereafter, non-agricultural protection declined gradually, and almost reached a level of zero in 2000-05. The relative rate of assistance to agriculture

(RRA) compares the levels of taxation or protection of the agricultural sector with that of the overall non-agricultural sector. Table 8 and Figure 5 show a negative RRA of about 50 percent in the 1961-84 period. During this time not only was agriculture heavily taxed directly but also indirectly via high non-agricultural protection via significant import tariffs. Then, with non-agricultural protection coming down and agricultural taxation declining, the RRA became virtually zero by the end of the 1980s, reflecting an equal rate of assistance to the agricultural and non-agricultural sectors. The trend towards stronger support to agriculture led to a positive RRA in 1990-94. For 2000-4, the RRA averaged about 20 percent, and reached 30 percent in 2005.

For the period from 1986, information on product-specific input subsidies and non-product-specific support measures is available. Figure 6 depicts NRAs for importables, exportables and total agriculture including and excluding product-specific input support. This reveals that subsidies to intermediate input use were higher for import-competing products than for export goods. Fertilizer initially took the highest share of product-specific input support, but in line with the decision to reduce fertilizer subsidies this share steadily decreased and concessional loans became the input support measure with the highest share. As Figure 6 shows, with the start of the ARIP reform in 2000, NRAs including and excluding product-specific input subsidies converge. This is a reflection of the reduction in coupled production support under the ARIP reform program. In 2001, the DIS began and more than replaced the direct product-specific support of the late 1990s.

Other studies measuring distortions to agriculture

To complete the picture on protection rates, we refer to the work of Togan, Bayaner and Nash (2005). They calculated NRPs and effective rates of protection (ERPs) by aggregated commodity groups and industries for 2002, using a 1996 input-output table. The main conclusions from their analysis are, *first*, that NRPs and ERPs are relatively close for primary agricultural production, which is consistent with the high share of non-traded items in the cost structure of Turkish agriculture, and *second*, that for the food processing industries, NRPs and ERPs diverge

²⁰ Exportable surpluses are about 4 percent, 11 percent and 60 percent per year of production for apples, tomatoes and cotton, respectively, but export subsidies were used for tomatoes and apples for a few years in the late 1990s

considerably, with ERP usually exceeding NRP. This is what would be expected given the relatively high rates of protection on many of these processed products²¹ and the much lower rates of protection on other inputs, and assuming relatively small cost shares of raw materials.

The precursor of the present study, conducted by Krueger, Schiff and Valdés (1991) (KSV), examined the evolution of distortions to agriculture in 16 countries over the period 1960-83. Turkey was part of this study, in which seven agricultural commodities were covered. The Nominal Rates of Protection (NRPs) obtained by KSV represent an index comparable to the NRA, although their study is based on a slightly different methodology and different data. One main methodological difference is the distinction between direct and indirect interventions. KSV defined effects that are due to agricultural policies (e.g., price controls, border measures, production subsidies) as direct effects and those resulting from non-agricultural and economy-wide policies as indirect effects. Another issue that is handled differently is the exchange rate used to convert border prices into local currency. In the present study, following Anderson et al. (2008), an equilibrium exchange rate is determined and exchange rate distortions are included in each product's NRA. Consequently, our commodity specific NRAs are not identical to those estimated by KSV. However, the overall trends in agricultural protection and taxation show the same pattern in both studies.

Finally, the OECD's percentage Producer Support Estimate (PSE) offers another indicator comparable to the NRAs resulting from this study. As already mentioned above, for the 1986-2004 time period the price and quantity data used to calculate NRAs for most products were taken from the OECD's PSE/CSE database. Nevertheless, although the same data were used, neither the commodity specific NRAs and PSEs nor the NRA and PSE for total agriculture, are absolutely identical. The reason for the discrepancies lies again in the methodological approach. In contrast to Anderson et al's (2008) methodology, the OECD converts the US dollar border prices at the official exchange rate and thus does not consider the influence of the parallel market rate. In addition, the PSE is expressed as a percentage of distorted prices whereas our NRA is expressed as a percentage of the undistorted border price.

only.

²¹ Togan (2005) gives averages for 2005 of 75 percent for products made from meat, fish etc, 93 percent for sugar and sweets, 31 percent cereals products, flour, etc, and 534 percent for processed fruit and vegetables.

Distortionary impact of policies

In an environment with variable rates of double-digit inflation, imperfect or incomplete markets and high levels of uncertainty, it is unclear to what extent the price information received by farmers reflects government policy intentions. Moreover, when policies change from year to year as in Turkey, short-run supply responses are likely to be very cautious. Indeed it is difficult to reconstruct a rationale that would have deliberately led to the pattern of support price changes shown in Table 6, where a shaded cell represents a fall in real price in order to emphasise the erratic pattern of real price movements for individual commodities.

Presumably risk-averse farmers reacted to such a climate of uncertainty by adopting risk-minimising strategies such as under-use of variable inputs in the short term and under-investment in the medium term. Investigating the supply response of Turkish wheat producers during the period 1960-2002, Bayaner and Bor (2006) found that output price had no explanatory power in their model, but that lagged gross wheat revenue and current fertilizer price had the expected effects, although elasticities were low. This supports the idea that output support in Turkey probably raised the medium-term trend level of output, but that annual supply fluctuations (to the extent that they are controlled by farmers and not caused by weather) are a response to changes in variable input prices.

Table 7 summarises the various policy related influences affecting Turkish agriculture over recent decades. Statistics such as the NRA are designed to measure distortions of type 2 in contexts relatively free of other interference. The NRA also includes the effects of exchange rate policies (type 1). However, the effect on incentives of distortions of type 3 are hardly captured by our measures, or – if contained therein – are difficult to disentangle from those of formal policy measures. The exogenous influences of type B may also be picked up to an unknown extent by these measures. Furthermore, the degree to which those exogenous influences have themselves distorted what was intended by policy makers when legislating policies is unknown.

Distortions of type 4 arise from the way support is distributed *within* agriculture, which is not picked up by our sector-averaged measures. Poverty is a feature of the lower end of a (usually highly skewed) income distribution. The distribution of support amongst Turkey's agricultural producers has been very unequal. In the early 2000s, the two-thirds of producers with less than 5 hectares of land used only 22 percent of the land (30 percent of the irrigated

land), 35 percent of the tractors, had less than 45 percent of the sheep and little over 50 percent of the cattle (Cakmak 2003). Larger farmers used more inputs, and until the abolition of input subsidies, they had better access to subsidised inputs or subsidised credit to obtain them.

Consequently, yields were and remain significantly higher on larger farms, and support delivered through market price still favors the larger, richer farmers. Now that most subsidies have been replaced by DIS, paid per hectare of the land holding, a bias still exists in favour of larger farms although there is a cap of 500 decars in the DIS system aimed at limiting the extent of payment concentration.

Historically, poverty has given farmers an incentive to leave farming and rural areas to provide cheap labor for other sectors of the economy. However, the transferable human capital of Turkey's farmers is very low, and unemployment in other sectors is high due to long-term under-investment in job creation, effectively narrowing this escape route.

When considering the impact of agricultural support on poverty levels *within* agriculture, it should be remembered that the transfer efficiency of agricultural support policies to the sector as a whole has been low. The delivery systems used for transfers in the past created opportunities for a high rate of 'leakage', and this still continues to a lesser extent. Therefore, measured support and transfers over-estimate the amounts that actually reached farmers as a whole, even before their distribution within agriculture is considered.

Consumers have been the source of 70-80 percent of the transfer to agriculture, and this burden is particularly regressive. In the late 1990s, the share of average household expenditure on food, beverages and tobacco was 36 percent for Turkey as a whole, but for the poorest 20 percent of households, it was 45 percent in urban areas and 56 percent in rural areas (Cakmak 2003). The tax burden of the direct transfers to farmers and agricultural parastatals from government revenue also falls heavily on the middle- and lower-income groups. It is true that many of the lowest income workers are in the informal sector and therefore do not pay direct taxes. However, the tax take from the highest income groups in Turkey is also disproportionately low for various reasons.

The food consumer tax equivalent (CTE) of Turkey's agricultural policies has been very high for a developing country. Turkey's average CTE of just over 25 percent in the 1990s (see Table 9) was similar to the EU's, but since then the EU has moved much more from price

support to direct income payments for farmers. Thus by 2005 the CTE was just 17 percent in the EU-25 whereas it was 27 percent for Turkey.

Taking all these factors into account, one cannot assume that reforming Turkey's agricultural policies in a way that lowers prices received by farmers must have a commensurate, positive impact on poor food-consuming households. For this to occur, price reductions have to be transmitted along the supply chain to consumers. The relevance of this warning to Turkey's situation is illustrated by the case of milk. Turkish farmgate prices for milk for most of the period 1990-2001 were about 75 percent of the EU milk price. At the same time, wholesale prices for butter and skim milk powder were considerably higher than EU prices, in some years double or more, indicating large inefficiencies and high transaction costs downstream from the farm gate (Grethe 2004). No evidence is available on wholesale-retail margins, but the weak structure (fragmented, many stages) and poor performance (over-capacity, inefficiency) of the food distribution chain suggest that this margin is also significant. Thus, the chance of a fall in the price of raw milk failing to reach the consumer of dairy products is strong. Since most agricultural commodities undergo storage, grading, processing and/or transportation before reaching the consumer, the effectiveness of the whole downstream sector in passing on policy reforms is crucial.

Conclusions

Measured transfers to the agricultural sector in Turkey have been high relative to GDP throughout the review period. They reached historic levels in the second half of the 1990s. However, the institutional set-up for delivering support to agriculture siphoned off or wasted a significant portion of the transfers captured from other economic sectors, and little benefit has reached poor farmers.

Agricultural policy reform, begun in 2000, has reduced the budgetary cost of agricultural support. The inefficient state marketing sector has been partly restructured, and its role in the marketing and distribution of agricultural commodities has diminished. Furthermore, the switch from coupled input and output subsidies to direct income support has reduced the potential for

farm support to distort production decisions. As the most recent figures suggest, the level of support granted to agriculture since 2000 is lower relative to that of the 1990s. This is particularly true with respect to import-competing products. Even though in the beginning of the new century there was a slight increase in subsidies, the level of support for exportables and total agriculture remained stable at rates of around 5 and 20 percent, respectively. However, estimates for 2005 show a small increase in support for exportables and for agriculture as a whole, while support to import-competing products remains high at 50 percent.

The massive agricultural support structure consisting of state-owned and state-controlled enterprises, which dominated agricultural markets for most of the review period, had its origins in the statist policies of the early decades of the Republic (1923-1960). The role of the state-owned sector was enhanced when it became an indispensable agent of government in implementing successive five-year plans, from the 1960s onwards. It seems to have flourished under both the import substitution regime of the 1960s and 1970s, and the export promotion policies of the 1980s. The agricultural parastatals were amongst the most influential lobbyists on behalf of the sector, and were already successful in capturing transfers from other sectors when Turkey's income was far lower than at present. These organisations also played a role in providing social benefits (conspicuously lacking from central government), and thus enjoyed support in local rural areas. OECD (1994) estimated that in the early 1990s the state-owned sugar corporation, TSFAS, alone affected the livelihood of 3 million people.

Much has been written about the distributional conflict that is endemic in Turkey. Virtually all occupational and interest groups (except for government employees and consumers) are organised, and the various distributional coalitions all operate very effectively politically (Olgun 1991). As Olgun notes, rent-seeking is pervasive in Turkey, and the success of political parties has often appeared to depend on maximising support amongst these powerful interest groups, if not simultaneously then sequentially (see, for example, Demir, 2002). The political economy of Turkey's agricultural policies has to be seen in this general context. Given that 'agricultural interests' found their most powerful (and successful) proponents and lobbyists in the agricultural parastatals and agribusiness, it is not surprising that, even when the pendulum was swinging in favor of agriculture, the small farmer (that is, the majority of primary producers) was not well served. Furthermore, the dismantling or disempowering of these well-entrenched interest groups is problematic in countries in transit to parliamentary democracy, or with

relatively fragile political coalitions, who need an electoral mandate for their reform but may depend politically on the very groups who will lose from it (Demir 2002).

It is also clear that macroeconomic stability is a necessary condition for setting agricultural policy on a more consistent and effective future path. Taking the previous 20 years' experience in Turkey as a starting point, Rodrik (1999) argued that the greater the latent distributional conflicts among social groups, and the weaker the political institutions for managing these conflicts, the greater is the (negative) impact of external shocks on the internal growth process. An external shock, such as the oil price crises of the 1970s, requires adjustment processes that are rarely without distributional consequences. When the latent rivalry amongst different social groups is strong, such a shock can trigger an outbreak of distributional conflict whose repercussions may take years to stabilise. When this occurs, 'inadequate adjustment condemns the country to foreign exchange bottlenecks, import compression, debt crises and bouts of high inflation'. In the resulting chaos, some interest groups will fare better than others for reasons that lie outside the realm of economic analysis. A prime casualty is the medium-term rate of growth. This theory sheds light on general macroeconomic developments in Turkey over the last 30 years, developments that have consistently overshadowed the design, implementation and outcomes of sectoral policies.

However, the re-instrumentation of agricultural policy and the liberalization of markets, which were introduced in 2001, represent important necessary conditions for the reduction of rural poverty in Turkey. A revision of economy-wide conditions will further improve future prospects for agriculture and the rural population by establishing a basis that allows sectoral policy changes to be more effective. Even though OECD (2004) describes the recovery from the 2001 crisis as job-poor, the recent new legislation aiming for greater flexibility of labor markets can be seen as a first step. The need to broaden the tax base and encourage private investment, not least foreign direct investment, are also regularly cited as pre-conditions for the kind of growth that would provide a background against which Turkish agriculture can modernise and restructure.

In October 2005, Turkey began negotiations for EU membership. Negotiations are still at a very early stage. It is expected that Turkey will align its border protection for agriculture and its domestic agricultural policies more closely with those of the EU, but not necessarily immediately and possibly not until nearer the end of those negotiations. Also, inflows of FDI

triggered by the prospect of EU entry could stimulate job creation in other sectors that would absorb some of agriculture's surplus labor. In addition, pre-accession EU funds might be used to finance programs that would lift parts of the rural population out of the poverty trap. The initiative must come from the Turkish authorities themselves to prioritise this expenditure so that it maximises the longer-term prospects of the sector.

In conclusion, the distortions that impoverish Turkish farmers are structural and institutional, and are compounded by the low level of human capital throughout the sector. Distortions elsewhere in the economy (rigid labor markets, persistent low rates of job-creating private investment due to distorted financial markets resulting from large public borrowing requirements), together with a high birth rate, have created a situation where it is impossible for agriculture to shed population fast enough and to achieve any degree of spontaneous restructuring independently. Distortionary agricultural policies cannot be singled out as the main cause of rural poverty in Turkey. But the recent developments towards a lower level of intervention represents a first step in the right direction. Since the reduction of agricultural support does not represent a panacea for ameliorating entrenched poverty in Turkey's rural areas, however, it is also necessary to promote macroeconomic stability and reform in order to provide a more conducive context for sectoral policy liberalization.

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Table 1: Population and GDP, Turkey, 1950 to 2004

	Population	Rural ² population	Agric. workers ³	GNP (current USD)	Period	Population	Rural populati on workers ³	Agricult ural workers ³	Real GNP ¹	Real GNP ¹ per capita
	million	million	million	billion		Average growth percent per year				
1950	20.8	15.7	7.4	3.4	1950-60	2.8	2.1	1.2	6.3	3.4
1960	27.5	19.3	8.3	9.8	1960-70	2.5	1.2	-0.1	5.6	3.0
1970	35.3	21.8	8.2	191	1970-80	2.3	1.4	0.1	4.0	1.6
1980	44.5	25.0	8.4	681	1980-90	2.4	-0.9	0.4	5.2	2.8
1990	56.2	22.9	8.7	151	1990-00	1.9	0.4	-1.1	3.5	1.6
2000	67.4	23.8	7.8	200	2000-04	1.6	0.1	-1.2	3.2	1.6
2004	71.7	23.8	7.4	300						

1. In constant 1987 Turkish Lira.

2. Population living in settlements of less than 20 thousand inhabitants.

3. Including forestry, hunting and fishing. Based on Household Labour Force Survey.

Sources: Turkish Statistical Institute, World Bank.

Table 2: Applied tariffs and tariff bindings, selected agricultural products, Turkey, 1992 to 2005

Product ¹	As of 1 st July 1992			As of 1 st July 1994			1997		2003		2004/5
	MFN tariff %	Border price USD	AVE %	MFN tariff %	Border price USD	AVE %	S ²	W ²	S ²	W ²	Binding percent S ²
Beef & veal	1	4246	57	15	4246	59	165	165	228	-	225
Pigmeat	30	1646	139	20	1563	135	200	-	228	-	225
Sheepmeat	1	3105	68	15	3105	63	165	-	228	-	225
Poultry meat	30	1755	60	5	1764	39	64	65	62	63	86
Milk powder	1	1515	105	20	1722	95	130	130	150	150	180
Cheese							73	75	88	99	139
Eggs	15	845	75	20	801	88	23	23	24	24	53
Potatoes							23	23	20	20	19
Hazelnuts	5	n.a.	n.a. ³	5	n.a.	40	40	40	44	44	43
Citrus							50	50	50	55	54
Grapes/raisins	1	n.a.	n.a. ³	10	n.a.	n.a. ³	55	55	56	55	55
Tea	20	n.a.	n.a. ³	10	n.a.	n.a. ³	145	145	145	145	168
Wheat	exempt	141	21	3	162	65	12	12	14	13	180
Rye	5	n.a.	31	5	n.a.	30	30	-	60	60	180
Barley	exempt	97	31	3	83	39	10	10	43	43	180
Maize	exempt	110	27	3	97	34	18	34	10	20	180
Sorghum	15	n.a.	42	10	n.a.	40	15	15	10	10	180
Rice	1	308	42	26	275	44	33	34	40	39	45
Soybeans	exempt	237	2	exempt	246	0	0	0	0	0	23
Rape seed	1	n.a.	26	10	n.a.	25	24	24	9	12	10
Sunflower seeds	exempt	233	34	3	233	12	19	19	8	8	26
Sugar beet ⁴	10	32	37	10	33	11	23	23	20	20	19
Olive oil	10	n.a.	n.a. ³	5	n.a.	37	37	37	32	32	31
Palm oil							10	8	10	8	36
Sun-/safflower oil							23	25	26	22	32
Sugar	exempt	275	73	3	280	146	135	135	127	98	135
Tobacco	0	4023	75	25	3770	78	25	25	25	25	45
Cigarettes							58	58	39	29	151
Hides, skins ⁴							2	1	2.23	1	30
Wool	exempt	4267	0	2	3738	2	0	0	0	0	6
Cotton	exempt	1302	0	-	1297	2	0	0	0	0	6

1. Product classification at the 4-digit HS level, and the for least processed form of the product, unless otherwise stated.

2. S=simple average; W=trade-weighted average.

3. Not possible to calculate an AVE, but the Mass Housing Fund Levy alone for these products was (in USD/t): hazelnuts (1992: 100, 1994: 35), raisins (1992: 100, 1994: 300), tea (1992: 2000, 1994: 3000), olive oil (1992: 200, 1994: 32).

4. Sugar beet: HS code 121291. Hides and skins: HS code 41.

Sources: OECD (1994), WITS database.

Table 3: Credit and fertilizer use, Turkey, 2000 to 2004

	2000	2001	2002	2003	2004
Agricultural credit (million YTL)					
Total ag. credit given by the Agricultural Bank	3409	2949	2884	3562	4017
Credit originating from the Bank	1575	770	600	534	1293
directly to producers	832	541	444	455	1220
ACCs and other organisations	243	2228	156	7	7
Credit originating from funds	1834	2179	2285	3028	2724
Fertilizer use (thousand tons)					
Total fertilizer	10425	8293	8696	9762	10153

Source: Turkish Statistical Institute.

Table 4: Direct income support scheme, Turkey, 2001 to 2005

	2001	2002	2003	2004	2005
Payment per hectare (YTL)	100	135	160	160	n.a.
Area ceiling (ha per farm)	20	50	50	50	50
Participating hectares (mn)	11.8	16.2	16.5	16.7	16.7
Share of agricultural area (percent)	48	66	67	68	68
Farming households participating (mn)	2.2	2.6	2.7	2.7	2.7
Share of farming households	54	75	87	87	87
Total cost (YTL bn)	1.18	2.19	2.64	2.66	n.a.

Sources: World Bank (2004), MARA.

Table 5: Nominal rates of assistance to agricultural industries, Turkey, 1961 to 2005 (percent)

	1961-64	1965-69	1970-74	1975-79	1980-84	1985-89	1990-94	1995-99	2000-04	2005
Importables										
Rice	--	--	--	--	--	27	246	111	98	-
Wheat	-11	-19	-12	-7	-26	39	45	47	26	39
Maize	--	-33	-13	--	-45	12	45	55	40	68
Sunflower	--	-6	-20	-27	-61	15	37	54	19	23
Sugar	--	--	--	--	--	15	36	113	116	136
Milk	--	38	47	73	7	62	125	127	57	29
Beef and veal	--	--	--	--	--	20	65	120	133	102
Exportables										
Barley	-15	-44	9	-21	-37	22	59	63	23	51
Potatoes	--	7	3	12	-7	23	27	32	118	315
Poultry	--	--	--	--	--	34	57	62	50	66
Sheepmeat	--	--	--	--	--	14	22	31	11	14
Eggs	--	--	--	--	-23	21	32	73	51	121
Grape	--	-11	2	-7	-11	6	19	5	29	44
Apple	--	-27	-40	-53	-52	-13	-16	6	0	92
Cotton	-26	-21	-11	-7	-31	-54	-47	-49	-36	-45
Tobacco	-46	-47	-38	-38	-68	0	37	49	-12	16
Tomatoes	--	-39	-41	-37	-36	34	9	-13	-10	-31
Hazelnuts	--	--	--	-22	-57	-47	-40	-31	-4	-
Importables	-11	-10	6	20	-20	28	60	81	54	50
Exportables	-30	-28	-18	-23	-35	-8	3	-2	3	11
Weighted average of above	-19	-18	-7	-8	-30	4	20	21	20	26
Standard Deviation	19	33	33	41	27	41	71	62	57	92
Share of above products in total gross value of agricultural production*	--	64	63	60	58	50	53	55	54	57

* Share is calculated in terms of undistorted prices

Source : Authors' calculations based on FAO data to 1986 and OECD data thereafter.

Table 6: Real changes in purchase price of selected agricultural commodities, Turkey,
1978 to 2003

(prices deflated by the Wholesale Price Index, annual percentage changes)

	Wheat	Cotton	Tobacco	Tea	Sugar beet	Sunflower	Hazelnuts
1978	-26.7	-16.2	-26.0	-21.4	-13.2	-14.3	-14.6
1979	-4.1	10.9	-25.8	-26.3	-3.7	-13.8	6.4
1980	-2.1	-6.6	-11.5	-7.8	5.4	20.7	39.8
1981	33.1	-7.6	-10.2	7.6	7.9	-3.1	-17.0
1982	-4.8	-5.1	18.5	3.8	-0.7	6.4	-6.6
1983	-3.3	28.2	2.4	1.0	-11.6	-15.0	-13.8
1984	7.3	-1.3	-11.0	-7.4	-11.9	19.9	-0.3
1985	-6.8	-9.8	-0.7	-3.2	8.6	-9.7	86.5
1986	-2.3	-4.8	11.0	-2.4	-5.8	-8.7	-21.0
1987	-7.6	58.3	40.9	-6.2	0.6	-3.5	30.6
1988	0.2	-17.5	18.0	-4.0	16.6	0.9	-0.3
1989	20.8	13.7	-1.0	-3.6	13.1	10.1	-16.9
1990	0.9	-9.0	7.4	4.5	11.2	-15.3	-18.4
1991	-3.5	0.9	-9.2	2.0	-1.2	12.0	4.8
1992	-5.4	-5.5	-3.0	46.0	0.4	0.6	2.8
1993	0.6	1.5	-19.9	-8.3	-4.2	1.0	-0.4
1994	-13.2	-9.4	-26.2	-20.0	-13.4	7.9	79.6
1995	13.1	20.8	2.2	7.5	43.3	1.6	-21.9
1996	69.0	-4.2	6.0	18.4	-1.3	19.9	43.3
1997	-12.5	12.1	12.7	11.0	39.7	-1.9	41.7
1998	-11.3	-24.4	1.4	1.0	-15.0	-4.0	-15.4
1999	-4.9	-9.7	4.7	-6.0	2.9	-24.0	-8.6
2000	-12.1	7.0	-20.1	-14.7	-15.2	-16.2	-33.9
2001	-6.4	-2.3	-14.2	-3.6	-14.6	37.3	-13.2
2002	-2.8	-21.6	-11.9	-15.8	5.8	-16.3	-29.5
2003 ¹	23.4	-1.4	-63.9	-0.5	-1.4	-20.4	26.4

1. Estimate.

Source: Authors' calculations based on data from the State Planning Organisation.

Table 7: Summary of influences on Turkey's agricultural and food sectors

	A. Policy-induced distortions	B. 'Exogenous' influences
1.	Macro-economic policies <ul style="list-style-type: none"> ▪ Exchange rate policy ▪ Monetary policy (inflation) 	
2.	Agricultural policies, instruments <ul style="list-style-type: none"> ▪ Tariffs, NTBs ▪ Product/input subsidies, taxes on market transactions ▪ Product/input subsidies, taxes direct to farmers ▪ Supply quotas ▪ Area controls ▪ Area payments 	<ul style="list-style-type: none"> ▪ Fragmentation of food supply chains ▪ Poor market infrastructure, including poor transport and storage facilities, weak information transmission etc ▪ Market imperfections ▪ Endemic rent-seeking and corruption ▪ Lack of sufficient education, training and job creation policies
3.	Agricultural policies, delivery mechanisms <ul style="list-style-type: none"> ▪ Inefficient state enterprises ▪ Long information and feedback channels ▪ Implementation delays and inconsistencies ▪ Weak supervision of implementation protocols ▪ Weak enforcement of conditions for eligibility 	
4.	Incidence of agricultural policy within agriculture <ul style="list-style-type: none"> ▪ Bias in favour of larger/richer farmers ▪ Bias with respect to products or farm types ▪ Regional bias 	

Source: Authors' categorization.

Table 8: Nominal rates of assistance to agriculture, to non-agricultural sectors, and relative rate of assistance, Turkey, 1961 to 2005
(percent)

	1961-64	1965-69	1970-74	1975-79	1980-84	1985-89	1990-94	1995-99	2000-04	2005
Covered Products	-19	-18	-7	-8	-30	4	20	21	20	26
Non-covered products	-19	-18	-7	-8	-30	4	20	21	20	26
All agric. products ^a	-19	-18	-7	-8	-30	4	20	21	20	26
Non-product specific input assistance (NPS)	0	0	2	1	0	0	0	0	3	5
Total agriculture incl. NPS^{a,b}	-19	-18	-5	-7	-29	4	20	21	23	31
Importables ^a	-11	-10	6	20	-20	28	60	81	54	50
Exportables ^a	-30	-28	-18	-23	-35	-8	3	-2	3	11
TBI	-21	-16	-17	-35	-17	-28	-35	-44	-32	-26
Tradables										
All Agriculture ^{a,b}	-19	-18	-7	-8	-30	4	20	21	23	31
All Non-Agriculture	61	141	50	56	35	20	10	2	1	0
RRAc	-46	-64	-37	-36	-50	-13	9	19	22	30

^a NRA including product-specific input subsidies

^b NRA including other (incl. decoupled & non-product-specific) subsidies

^c The RRA is defined as $100 * [(100 + \text{NRAag}^t) / (100 + \text{NRAnonag}^t) - 100]$, where NRAag^t and NRAnonag^t are the average percentage NRAs for the tradables part of the agricultural and non-agricultural sectors, respectively

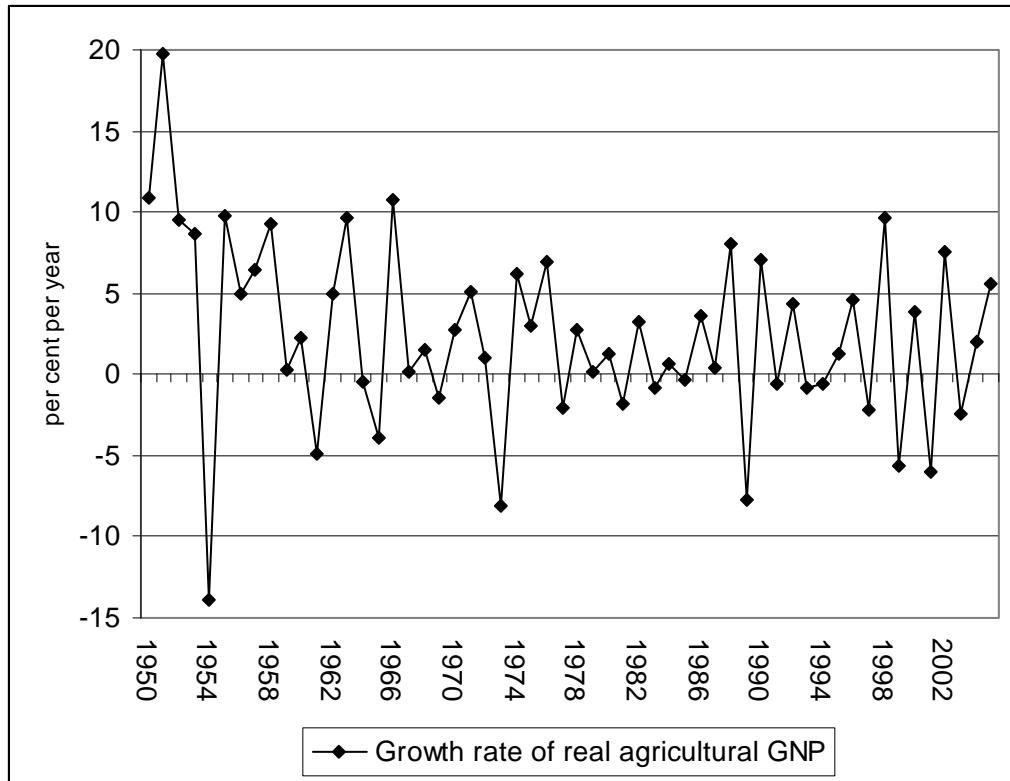
Source: Authors' calculations.

**Table 9: Consumer tax equivalent for food products, Turkey,^a 1986 to 2005
(percent)**

	Wheat	Maize	Barley	Other Grains	Apples	Grapes	Potatoes	Tomatoes	Sunflower	Sugar	Tobacco	Beef and veal	Sheep meat	Poultry	Eggs	Milk	We a
1986	6	5	4	4	-9	13	-1	22	24	17	21	45	14	4	19	186	
1987	35	9	5	5	3	1	48	43	24	16	22	23	28	19	13	122	
1988	57	9	-1	-1	10	-4	22	56	-7	-1	-15	-11	9	10	9	69	
1989	31	7	0	0	-29	46	40	65	23	-13	-9	1	22	24	47	95	
1990	16	15	4	4	-12	13	61	21	22	17	8	46	25	53	29	530	
1991	64	20	5	5	-23	2	9	32	41	50	63	124	24	42	9	508	
1992	18	18	4	4	0	38	44	15	45	62	24	67	13	63	76	207	
1993	10	10	7	7	-14	20	30	12	30	50	33	57	26	81	36	146	
1994	11	-4	2	2	-23	35	10	-18	1	-18	38	0	25	29	17	100	
1995	-12	3	0	0	12	-6	47	-31	25	40	46	43	28	66	96	64	
1996	3	6	1	1	6	-17	70	10	46	44	64	23	-7	29	44	81	
1997	30	12	1	1	3	15	2	7	56	117	51	88	0	23	55	135	
1998	50	14	3	3	0	24	17	-19	37	123	36	148	26	73	69	113	
1999	51	12	3	3	1	0	14	-36	29	183	-4	146	33	54	74	95	
2000	19	11	2	2	3	26	32	-1	28	120	-20	131	27	52	78	79	
2001	-5	1	0	0	-19	-8	46	-16	23	37	-48	79	-15	19	32	-5	
2002	13	6	1	1	-1	30	174	-19	6	90	-16	118	9	47	36	55	
2003	56	13	2	2	-1	30	145	5	12	150	6	194	21	53	19	61	
2004	22	13	3	3	16	67	194	-20	12	167	2	113	7	75	87	51	
2005	35	13	4	4	92	44	315	-31	23	136	16	96	14	66	121	27	

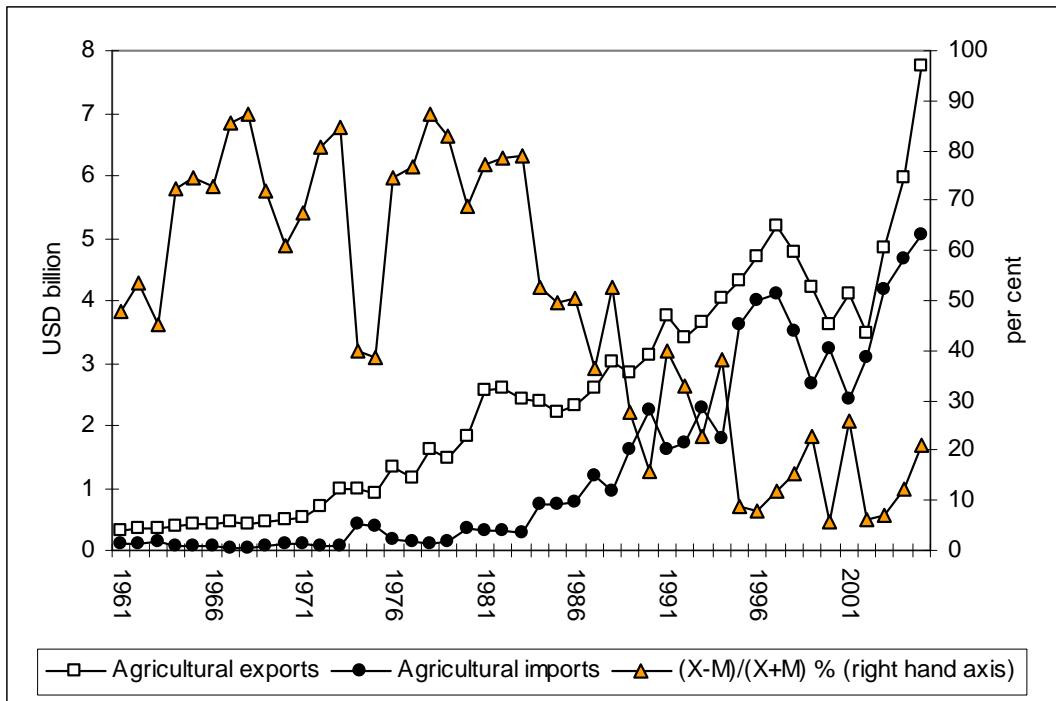
a. The negative of the OECD's (2007) Consumer Subsidy Equivalent (CSE), expressed as a percentage of undistorted prices.
Source: Authors' calculations, based on (OECD 2007).

Figure 1: Growth of real agricultural GDP, Turkey, 1950 to 2005



Source: Turkish Statistical Institute.

Figure 2: Agricultural trade, Turkey, 1961 to 2005



Source: FAOSTAT, Turkish Ministry of Industry and Trade.

Figure 3: Agricultural Producer Support Estimates, Turkey, 1986 to 2005

(a) Producer Support Estimate, General Services Support Estimate, and Total Support Estimate (real YTL billion)

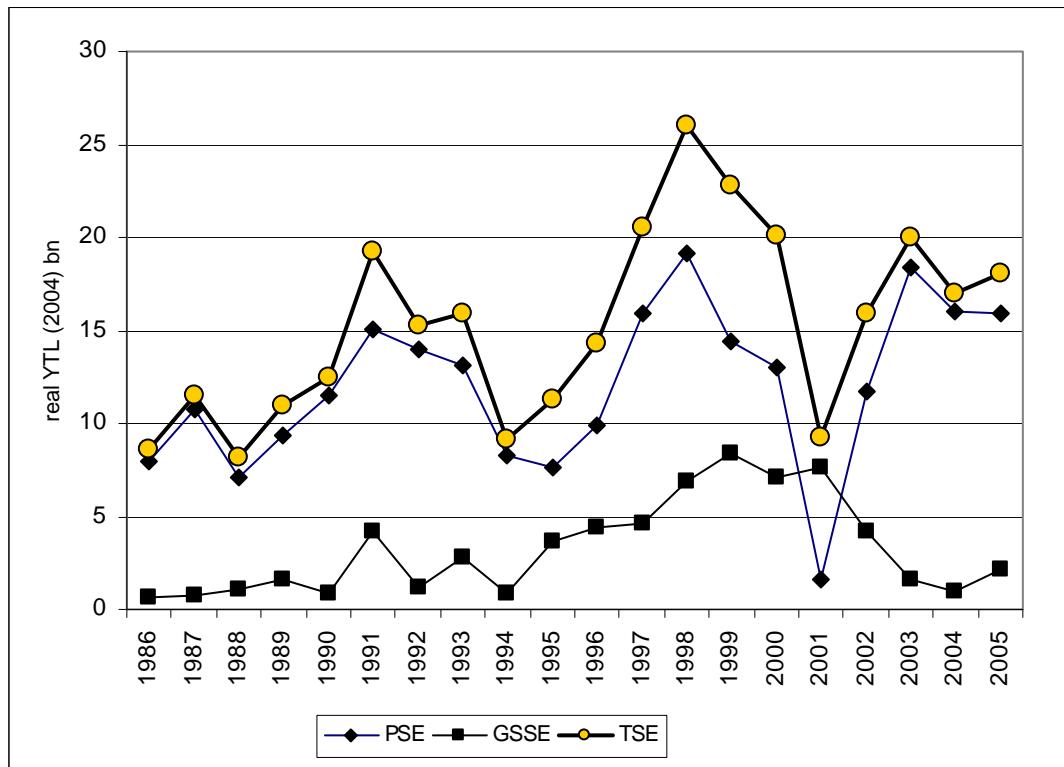
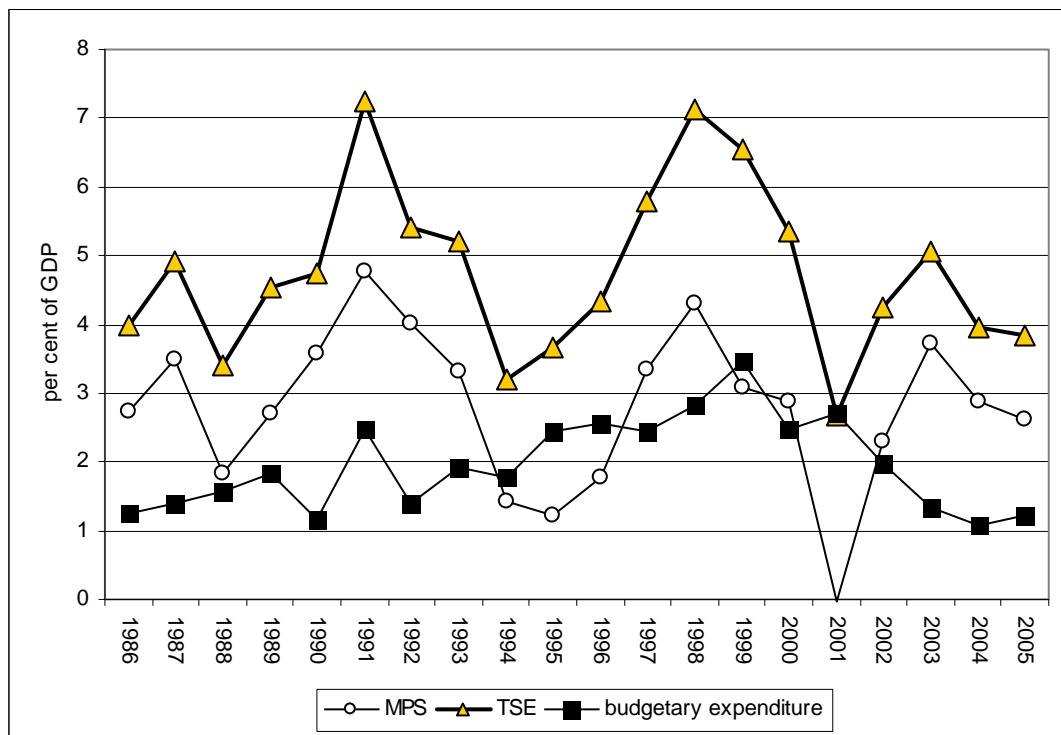


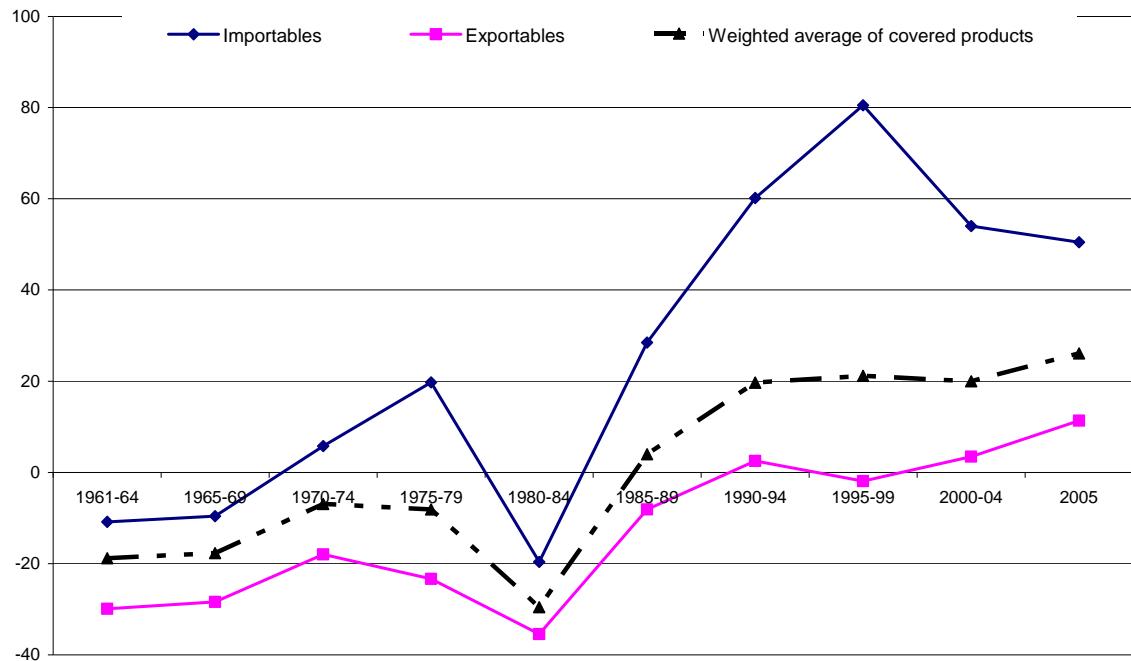
Figure 3 (continued): Agricultural Producer Support Estimates, Turkey, 1986 to 2005

(b) Market Price Support, Total Support Estimate, and budgetary expenditure on agriculture (as percent of GDP)



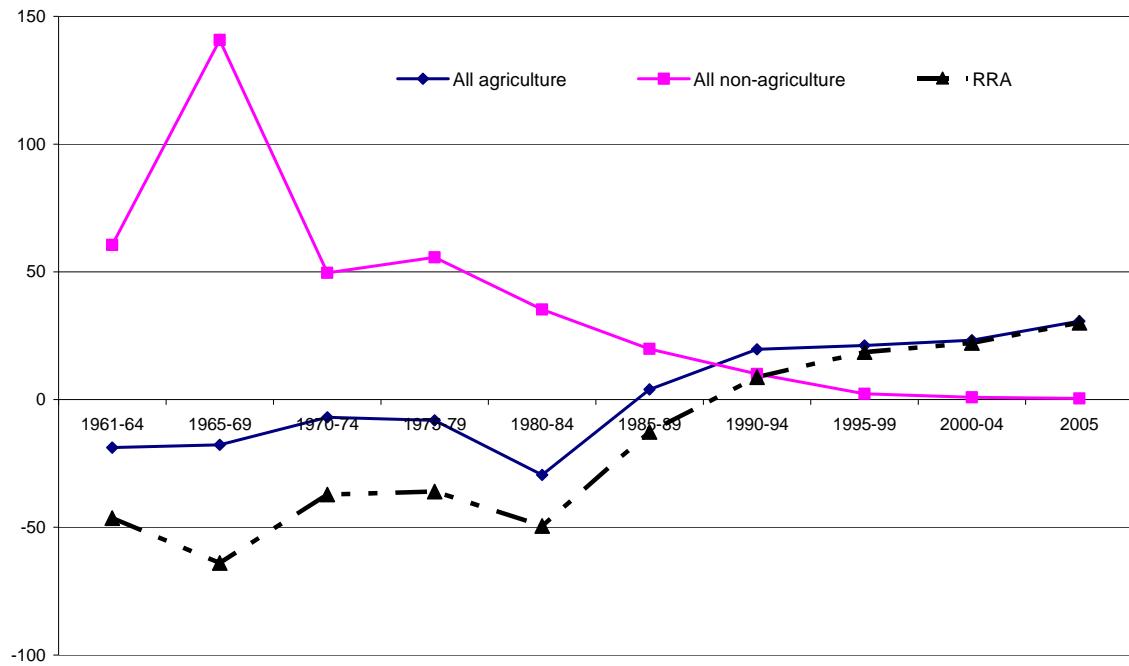
Source: OECD PSE database.

Figure 4: Nominal rates of assistance (NRA) to exportable and import-competing agricultural industries, and to total agriculture (including product-specific support), Turkey, 1961 to 2005



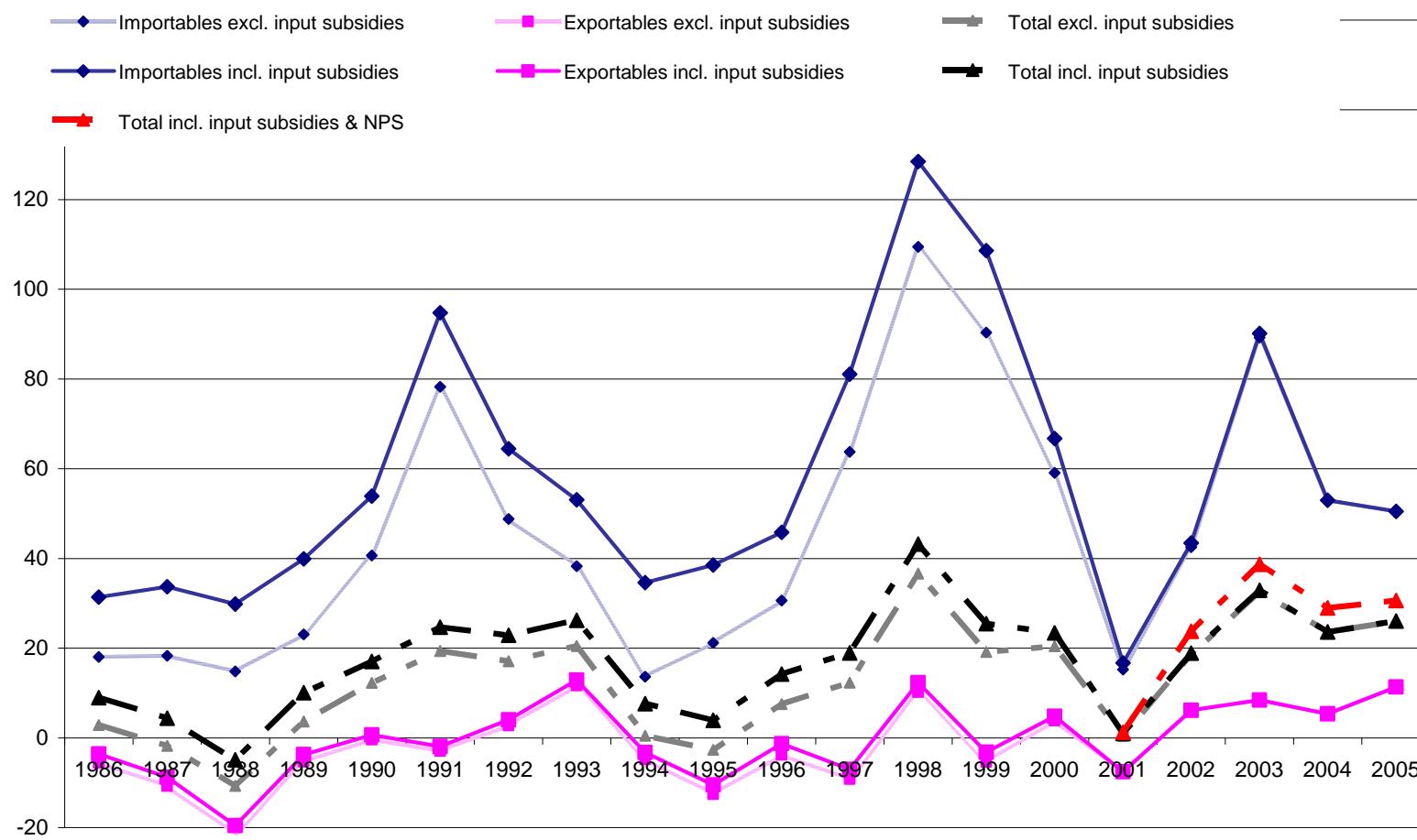
Source: Authors' own calculations.

Figure 5: Relative Rate of Assistance to primary agriculture, Turkey, 1961 to 2005



Source: Authors' own calculations.

Figure 6: Nominal Rates of Assistance including and excluding product-specific and non-product-specific (NPS) support, Turkey, 1986 to 2005



Source: Authors' own calculations.

Appendix Table A1: Nominal rate of assistance to agric. products, Turkey, 1960 to 2005

Year	Rice			Wheat			Maize		
	domestic price (TL)	border price (\$)	NRA	domestic price (TL)	border price (\$)	NRA	domestic price (TL)	border price (\$)	NRA
1960	n.a.	n.a.	n.a.	591	n.a.	n.a.	n.a.	n.a.	n.a.
1961	n.a.	n.a.	n.a.	731	73	-0.20	n.a.	66	n.a.
1962	n.a.	n.a.	n.a.	811	73	-0.07	n.a.	n.a.	n.a.
1963	n.a.	n.a.	n.a.	800	73	-0.07	n.a.	69	n.a.
1964	n.a.	n.a.	n.a.	798	76	-0.10	n.a.	n.a.	n.a.
1965	n.a.	n.a.	n.a.	858	75	-0.01	n.a.	n.a.	n.a.
1966	1947	n.a.	n.a.	877	73	0.04	831	n.a.	n.a.
1967	1654	n.a.	n.a.	880	138	-0.46	826	n.a.	n.a.
1968	1721	n.a.	n.a.	898	200	-0.64	838	n.a.	n.a.
1969	2074	n.a.	n.a.	951	66	0.13	937	110	-0.33
1970	2201	n.a.	n.a.	985	63	0.32	953	n.a.	n.a.
1971	2347	n.a.	n.a.	1029	71	-0.09	923	66	-0.13
1972	2585	n.a.	n.a.	1081	80	-0.08	1064	n.a.	n.a.
1973	4170	n.a.	n.a.	1310	202	-0.56	1460	n.a.	n.a.
1974	5120	n.a.	n.a.	2330	204	-0.22	2350	n.a.	n.a.
1975	5390	n.a.	n.a.	2675	224	-0.24	2510	n.a.	n.a.
1976	5590	n.a.	n.a.	2660	153	0.02	2620	n.a.	n.a.
1977	9960	n.a.	n.a.	2915	127	0.01	3310	n.a.	n.a.
1978	15130	n.a.	n.a.	3570	n.a.	n.a.	4410	n.a.	n.a.
1979	18590	n.a.	n.a.	5190	n.a.	n.a.	5940	n.a.	n.a.
1980	25690	n.a.	n.a.	10575	n.a.	n.a.	13020	n.a.	n.a.
1981	54380	n.a.	n.a.	18330	174	-0.18	22450	n.a.	n.a.
1982	57720	n.a.	n.a.	23015	174	-0.27	27900	188	-0.18
1983	63250	n.a.	n.a.	27415	155	-0.28	28230	1600	-0.93
1984	207000	n.a.	n.a.	43965	173	-0.31	46790	164	-0.23
1985	302000	571	0.10	63500	153	-0.14	66000	184	-0.25
1986	345000	600	-0.19	79030	111	0.14	70440	96	0.12
1987	425000	1067	-0.56	96760	82	0.53	86360	85	0.24
1988	947000	n.a.	n.a.	168090	72	0.78	209710	122	0.22
1989	1902000	322	1.75	327650	116	0.62	310170	125	0.27
1990	2333000	209	3.24	503370	164	0.33	442350	121	0.52
1991	2748000	176	2.58	762590	106	0.89	797770	117	0.68
1992	5308400	216	2.42	1155910	141	0.35	1185080	110	0.63
1993	7238800	184	2.48	1842920	151	0.25	1599740	110	0.40
1994	12893000	169	1.57	3591000	109	0.43	3133000	119	0.03
1995	20382000	190	1.33	7432000	187	0.04	6769000	138	0.23
1996	39510000	205	1.44	18508000	219	0.21	16871000	177	0.34
1997	64273000	197	1.08	35141000	174	0.46	28503000	128	0.58
1998	115953000	223	1.14	53566000	132	0.87	46969000	110	0.94
1999	170804000	265	0.54	75963000	116	0.77	65189000	103	0.64
2000	249248000	199	1.00	97325000	128	0.30	90000000	103	0.46
2001	374372992	181	0.69	157098000	136	-0.04	139840000	108	0.07
2002	561713984	167	1.23	229321000	134	0.15	212834000	120	0.18
2003	669937024	224	0.99	353620000	144	0.64	305652000	126	0.61
2004	n.a.	431	n.a.	350440000	199	0.24	318705000	132	0.69
2005	n.a.	n.a.	n.a.	331000000	177	0.39	260000000	115	0.68

Appendix Table A1 (cont): Nominal rate of assistance to ag products, Turkey, 1960-2005

Year	Sunflowers			Sugar			Milk		
	domestic price (TL)	border price (\$)	NRA	domestic price (TL)	border price (\$)	NRA	domestic price (TL)	border price (\$)	NRA
1960	n.a.	n.a.	n.a.	461	n.a.	n.a.	n.a.	n.a.	n.a.
1961	n.a.	149	n.a.	376	n.a.	n.a.	n.a.	43	n.a.
1962	n.a.	198	n.a.	382	n.a.	n.a.	n.a.	34	n.a.
1963	n.a.	280	n.a.	385	n.a.	n.a.	n.a.	83	n.a.
1964	n.a.	181	n.a.	427	n.a.	n.a.	n.a.	105	n.a.
1965	n.a.	172	n.a.	427	n.a.	n.a.	n.a.	25	n.a.
1966	1735	148	0.01	442	n.a.	n.a.	1322	84	0.36
1967	1720	152	-0.04	448	n.a.	n.a.	1386	72	0.61
1968	1707	156	-0.14	439	n.a.	n.a.	1486	69	0.70
1969	1695	144	-0.07	439	303	n.a.	1593	146	-0.14
1970	1851	164	-0.05	606	n.a.	n.a.	1754	92	0.61
1971	2005	165	-0.24	606	n.a.	n.a.	2125	109	0.22
1972	2425	164	0.01	606	n.a.	n.a.	2288	99	0.59
1973	2380	221	-0.27	848	n.a.	n.a.	2702	117	0.57
1974	2940	362	-0.44	1091	670	n.a.	3340	168	0.37
1975	5710	333	0.09	1364	600	n.a.	4750	179	0.69
1976	5490	334	-0.04	1697	700	n.a.	5520	115	1.81
1977	5650	324	-0.23	1879	n.a.	n.a.	6520	195	0.47
1978	6440	373	-0.48	2212	569	n.a.	9910	210	0.41
1979	9840	747	-0.70	3364	351	n.a.	14260	261	0.26
1980	19380	561	-0.59	4879	773	n.a.	26190	272	0.13
1981	31340	582	-0.58	11848	771	n.a.	35910	322	-0.13
1982	40150	582	-0.62	15121	183	n.a.	43370	168	0.43
1983	52180	600	-0.64	18000	336	n.a.	54800	306	-0.27
1984	90840	613	-0.60	22788	280	n.a.	82000	188	0.18
1985	151000	375	-0.17	33333	356	n.a.	135000	173	0.62
1986	168000	200	0.33	132145	168	0.33	110860	58	1.17
1987	215000	202	0.31	164944	166	0.24	135100	71	0.64
1988	370000	280	-0.04	363388	258	0.05	245930	102	0.24
1989	668000	257	0.32	678743	369	-0.03	432890	104	0.43
1990	862000	271	0.36	1040634	340	0.24	744230	45	1.54
1991	1512000	258	0.49	1681416	268	0.50	1142930	45	1.26
1992	2582000	260	0.51	2709118	243	0.66	2100970	99	1.29
1993	4016000	280	0.41	4065106	246	0.55	3135400	116	1.28
1994	9528000	320	0.10	8099607	333	-0.13	6654000	113	0.89
1995	18000000	314	0.34	22131070	345	0.52	13000000	173	0.90
1996	35000000	294	0.68	36532000	312	0.56	25678000	174	1.02
1997	65000000	274	0.66	87396000	265	1.19	54122500	152	1.36
1998	110000000	309	0.62	138020265	237	1.46	88424280	159	1.98
1999	130000000	240	0.40	218379013	184	1.91	114794000	140	1.11
2000	165000000	206	0.37	245858516	179	1.25	167041260	150	0.78
2001	370000000	245	0.27	360080058	214	0.41	222193000	192	0.11
2002	460000000	289	0.07	566815847	198	0.93	345188000	148	0.56
2003	485000000	287	0.14	665185965	178	1.55	445932000	185	0.86
2004	515000000	323	0.12	741367403	195	1.67	524853610	244	0.53
2005	500000000	302	0.23	759272218	239	1.36	503600000	295	0.29

Appendix Table A1 (cont): Nominal rate of assistance to ag products, Turkey, 1960-2005

Year	Beef and Veal			Maize			Barley		
	domestic price (TL)	border price (\$)	NRA	domestic price (TL)	border price (\$)	NRA	domestic price (TL)	border price (\$)	NRA
1960	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	458	n.a.	n.a.
1961	n.a.	n.a.	n.a.	n.a.	66	n.a.	507	46	-0.12
1962	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	545	n.a.	n.a.
1963	n.a.	n.a.	n.a.	n.a.	69	n.a.	547	49	-0.04
1964	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	544	65	-0.28
1965	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	615	n.a.	n.a.
1966	n.a.	n.a.	n.a.	831	n.a.	n.a.	688	n.a.	n.a.
1967	n.a.	n.a.	n.a.	826	n.a.	n.a.	686	103	-0.44
1968	n.a.	n.a.	n.a.	838	n.a.	n.a.	721	n.a.	n.a.
1969	n.a.	n.a.	n.a.	937	110	-0.33	786	n.a.	n.a.
1970	n.a.	n.a.	n.a.	953	n.a.	n.a.	818	n.a.	n.a.
1971	n.a.	n.a.	n.a.	923	66	-0.13	847	56	-0.05
1972	n.a.	n.a.	n.a.	1064	n.a.	n.a.	920	51	0.23
1973	n.a.	n.a.	n.a.	1460	n.a.	n.a.	1185	n.a.	n.a.
1974	n.a.	n.a.	n.a.	2350	n.a.	n.a.	1995	n.a.	n.a.
1975	n.a.	n.a.	n.a.	2510	n.a.	n.a.	2040	n.a.	n.a.
1976	n.a.	n.a.	n.a.	2620	n.a.	n.a.	2045	133	-0.10
1977	n.a.	n.a.	n.a.	3310	n.a.	n.a.	2435	137	-0.22
1978	n.a.	n.a.	n.a.	4410	n.a.	n.a.	3320	121	-0.18
1979	n.a.	n.a.	n.a.	5940	n.a.	n.a.	4715	170	-0.36
1980	n.a.	n.a.	n.a.	13020	n.a.	n.a.	8040	156	-0.39
1981	n.a.	n.a.	n.a.	22450	n.a.	n.a.	14860	184	-0.37
1982	n.a.	n.a.	n.a.	27900	188	-0.18	17050	170	-0.45
1983	n.a.	n.a.	n.a.	28230	1600	-0.93	20950	146	-0.42
1984	n.a.	n.a.	n.a.	46790	164	-0.23	39450	137	-0.22
1985	n.a.	n.a.	n.a.	66000	184	-0.25	51500	141	-0.24
1986	1006000	1028	0.51	70440	96	0.12	62980	65	0.47
1987	1842000	1741	0.27	86360	85	0.24	79670	57	0.71
1988	2684000	2112	-0.07	209710	122	0.22	139560	103	-0.03
1989	4462000	2089	0.08	310170	125	0.27	269750	124	0.18
1990	7646000	2002	0.54	442350	121	0.52	388850	103	0.55
1991	13606000	1453	1.28	797770	117	0.68	588500	89	0.63
1992	24081000	2104	0.68	1185080	110	0.63	987820	97	0.55
1993	39172000	2277	0.61	1599740	110	0.40	1614840	79	0.92
1994	72175000	2447	0.14	3133000	119	0.03	2727920	79	0.32
1995	179552000	2730	0.62	6769000	138	0.23	5422000	121	0.09
1996	249470000	2482	0.50	16871000	177	0.34	15114000	159	0.32
1997	492009000	1719	1.13	28503000	128	0.58	25488000	126	0.43
1998	1080318000	1672	1.98	46969000	110	0.94	39110000	74	1.38
1999	1612139000	1568	1.79	65189000	103	0.64	60064000	83	0.91
2000	2153528000	1490	1.45	90000000	103	0.46	81600000	100	0.37
2001	2670246000	1214	0.80	139840000	108	0.07	128976000	101	0.05
2002	4077918000	1244	1.18	212834000	120	0.18	151161000	95	0.06
2003	6502353000	1473	1.95	305652000	126	0.61	231830000	119	0.29
2004	6667345000	2197	1.25	318705000	132	0.69	261507000	134	0.37
2005	6830000000	2594	1.02	260000000	115	0.68	250000000	123	0.51

Appendix Table A1 (cont): Nominal rate of assistance to ag products, Turkey, 1960-2005

Year	Potatoes			Poultry			Sheepmeat		
	domestic price (TL)	border price (\$)	NRA	domestic price (TL)	border price (\$)	NRA	domestic price (TL)	border price (\$)	NRA
1960	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1961	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1962	n.a.	125	n.a.	n.a.	n.a.	n.a.	n.a.	1250	n.a.
1963	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	1500	n.a.
1964	n.a.	60	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1965	n.a.	47	n.a.	n.a.	n.a.	n.a.	n.a.	740	n.a.
1966	694	47	0.27	9300	n.a.	n.a.	n.a.	n.a.	n.a.
1967	872	69	0.07	11000	n.a.	n.a.	n.a.	n.a.	n.a.
1968	877	77	-0.10	12000	n.a.	n.a.	n.a.	835	n.a.
1969	839	63	0.06	12700	n.a.	n.a.	n.a.	807	n.a.
1970	920	82	-0.05	14100	n.a.	n.a.	n.a.	834	n.a.
1971	986	83	-0.25	19000	n.a.	n.a.	n.a.	1027	n.a.
1972	1240	76	0.11	23900	n.a.	n.a.	n.a.	1139	n.a.
1973	1530	94	0.11	26000	n.a.	n.a.	n.a.	1450	n.a.
1974	1810	102	0.22	30000	n.a.	n.a.	n.a.	2158	n.a.
1975	2130	113	0.20	34000	n.a.	n.a.	n.a.	2136	n.a.
1976	3030	193	-0.08	43000	n.a.	n.a.	n.a.	2106	n.a.
1977	3270	175	-0.18	60000	n.a.	n.a.	n.a.	2396	n.a.
1978	5410	122	0.32	101000	n.a.	n.a.	n.a.	2890	n.a.
1979	9910	171	0.33	259000	n.a.	n.a.	n.a.	3054	n.a.
1980	16520	189	0.03	506000	n.a.	n.a.	n.a.	3105	n.a.
1981	21250	233	-0.29	354000	n.a.	n.a.	n.a.	3083	n.a.
1982	22880	148	-0.15	412000	n.a.	n.a.	n.a.	2641	n.a.
1983	29810	130	-0.06	514000	n.a.	n.a.	n.a.	2347	n.a.
1984	62190	149	0.13	700000	n.a.	n.a.	n.a.	2109	n.a.
1985	97000	154	0.31	1067000	n.a.	n.a.	n.a.	2009	n.a.
1986	85000	127	-0.06	650000	927	0.31	1305000	1698	0.09
1987	131000	103	0.40	883000	867	0.42	2133000	1950	0.22
1988	162000	94	0.14	1613000	1026	0.26	2934000	1899	0.03
1989	373000	126	0.38	2612000	991	0.36	4739000	1825	0.22
1990	780000	185	0.60	4545000	1139	0.57	7722000	2367	0.25
1991	795000	175	0.04	6714000	1130	0.43	14681000	2827	0.20
1992	1215000	123	0.37	11527000	1030	0.63	24081000	3099	0.10
1993	2534000	177	0.26	18918000	950	0.83	43015000	3099	0.24
1994	4732000	146	0.10	37329000	978	0.40	85906000	2317	0.29
1995	13937000	207	0.47	79662000	1044	0.82	198809000	3392	0.39
1996	15422000	111	0.75	120890000	1152	0.43	316636000	4169	0.08
1997	29537000	191	-0.02	210192000	1126	0.26	546501000	3593	0.08
1998	73405000	241	0.25	443722000	983	0.95	929015000	2837	0.52
1999	96801000	203	0.14	585502000	908	0.63	1540411000	2766	0.49
2000	132444000	160	0.32	748350000	785	0.56	2244433000	2819	0.33
2001	197265000	110	0.46	1251729000	857	0.19	2789041000	2679	-0.15
2002	264485000	64	1.74	1648397000	742	0.47	5124001000	3113	0.09
2003	307788000	84	1.45	1949975000	848	0.53	6331887000	3499	0.21
2004	3550000000	85	1.94	2095185000	839	0.75	6359349000	4180	0.07
2005	4000000000	72	3.15	2180000000	980	0.66	6388571000	4188	0.14

Appendix Table A1 (cont): Nominal rate of assistance to ag products, Turkey, 1960-2005

Year	Eggs			Grapes			Apples		
	domestic price (TL)	border price (\$)	NRA	domestic price (TL)	border price (\$)	NRA	domestic price (TL)	border price (\$)	NRA
1960	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1961	n.a.	401	n.a.	n.a.	126	n.a.	n.a.	n.a.	n.a.
1962	n.a.	403	n.a.	n.a.	125	n.a.	n.a.	n.a.	n.a.
1963	n.a.	396	n.a.	n.a.	117	n.a.	n.a.	n.a.	n.a.
1964	n.a.	235	n.a.	n.a.	97	n.a.	n.a.	n.a.	n.a.
1965	n.a.	n.a.	n.a.	n.a.	106	n.a.	n.a.	n.a.	n.a.
1966	5418	n.a.	n.a.	1130	109	-0.10	1537	n.a.	n.a.
1967	5946	n.a.	n.a.	1012	107	-0.20	1466	145	-0.15
1968	6436	n.a.	n.a.	1091	102	-0.15	1186	142	-0.34
1969	6709	n.a.	n.a.	1258	99	0.00	1301	155	-0.34
1970	7818	n.a.	n.a.	1266	88	0.22	1587	188	-0.29
1971	9345	n.a.	n.a.	1568	107	-0.08	1652	177	-0.42
1972	9964	n.a.	n.a.	1633	123	-0.09	1586	192	-0.44
1973	12000	n.a.	n.a.	2540	170	0.02	2060	240	-0.41
1974	17818	n.a.	n.a.	3470	226	0.06	2610	328	-0.45
1975	20546	n.a.	n.a.	3730	289	-0.17	3140	421	-0.52
1976	22909	n.a.	n.a.	4840	327	-0.13	3760	467	-0.53
1977	26364	n.a.	n.a.	7870	360	-0.04	4780	459	-0.54
1978	39637	n.a.	n.a.	11690	338	0.03	8110	530	-0.54
1979	60000	n.a.	n.a.	15730	371	-0.02	12570	568	-0.49
1980	87818	n.a.	n.a.	36130	435	-0.02	18430	486	-0.55
1981	157640	1511	-0.18	42910	389	-0.14	23820	463	-0.60
1982	201280	1622	-0.31	47670	289	-0.09	33090	386	-0.53
1983	225090	1205	-0.24	66940	304	-0.10	36540	289	-0.48
1984	327270	1110	-0.20	98990	332	-0.19	53610	253	-0.43
1985	472730	1067	-0.08	144000	321	-0.07	92250	239	-0.20
1986	482400	600	0.27	209000	274	0.07	120000	196	-0.14
1987	825660	856	0.17	277000	321	-0.05	165000	186	-0.02
1988	1168380	751	0.18	419000	308	-0.10	334000	213	0.03
1989	2142180	687	0.53	878000	284	0.44	406000	269	-0.30
1990	3168000	942	0.30	1223000	414	0.12	698000	303	-0.13
1991	4183560	922	0.06	1948000	456	-0.02	1211000	375	-0.26
1992	10241460	846	0.72	3480000	368	0.31	2252000	328	-0.04
1993	12654000	849	0.34	5365000	406	0.16	3292000	347	-0.16
1994	30798000	889	0.20	15583000	389	0.35	8231000	361	-0.23
1995	72396000	805	1.01	19968000	463	-0.06	17569000	341	0.12
1996	125910000	1077	0.51	33299000	495	-0.15	26605000	308	0.10
1997	213732000	906	0.53	50759000	290	0.12	44957000	287	0.00
1998	320184000	725	0.84	121043000	373	0.33	91368000	349	0.08
1999	443952000	608	0.78	177347000	422	0.00	140821000	333	0.01
2000	848556000	765	0.79	280139000	355	0.26	236610000	367	0.03
2001	1248804000	775	0.32	376040000	332	-0.08	302265000	304	-0.19
2002	1696147000	827	0.36	656044000	335	0.30	512562000	345	-0.01
2003	21120000000	1178	0.19	810479000	415	0.30	641282000	432	-0.01
2004	26100000000	977	0.87	9790000000	411	0.67	7000000000	423	0.16
2005	27000000000	908	1.21	10000000000	517	0.44	7500000000	291	0.92

Appendix Table A1 (cont): Nominal rate of assistance to ag products, Turkey, 1960-2005

Year	Cotton			Tobacco			Tomatoes		
	domestic price (TL)	border price (\$)	NRA	domestic price (TL)	border price (\$)	NRA	domestic price (TL)	border price (\$)	NRA
1960	5100	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1961	5140	623	0	4703	986	-0.62	n.a.	29	n.a.
1962	5330	597	0	7936	1060	-0.37	n.a.	333	n.a.
1963	5260	581	0	11651	1497	-0.33	n.a.	51	n.a.
1964	5240	582	0	8896	1581	-0.52	n.a.	59	n.a.
1965	5210	565	0	7431	1308	-0.51	n.a.	100	n.a.
1966	5117	536	-0.17	8216	1262	-0.44	460	77	-0.48
1967	5434	576	-0.20	8588	1285	-0.44	460	34	0.14
1968	5517	608	-0.28	7969	1167	-0.46	465	n.a.	n.a.
1969	5646	547	-0.18	6973	1156	-0.52	495	250	-0.84
1970	6108	551	-0.06	7814	1061	-0.38	470	167	-0.76
1971	7730	672	-0.28	9039	1018	-0.44	670	n.a.	n.a.
1972	9352	744	-0.14	8142	1051	-0.47	830	222	-0.74
1973	13910	934	0.01	12470	1225	-0.31	1340	125	-0.27
1974	21180	1621	-0.10	18240	1820	-0.31	1460	89	0.13
1975	18160	932	0.24	29630	2791	-0.32	1760	170	-0.34
1976	24180	1141	0.24	36610	3134	-0.32	1790	271	-0.61
1977	28490	1397	-0.10	43440	2843	-0.33	3910	521	-0.67
1978	20050	1254	-0.52	48000	2913	-0.51	7020	262	-0.20
1979	50280	1513	-0.23	62230	2544	-0.44	7710	181	-0.02
1980	92410	1779	-0.39	77570	2792	-0.67	14760	268	-0.35
1981	147680	1691	-0.32	137030	3016	-0.64	21580	255	-0.34
1982	184240	1368	-0.26	191290	3320	-0.68	17150	180	-0.47
1983	275840	1546	-0.27	227510	3420	-0.73	28810	199	-0.41
1984	426480	1672		296950	3103		58000	208	-0.25
1985	535000	1361		781400	3214		98000	191	0.07
1986	319000	927	-0.52	2268000	2783	0.15	140000	169	0.16
1987	525000	1129	-0.49	3402000	3243	0.16	181000	147	0.35
1988	696000	1190	-0.61	4695000	3892	-0.21	310000	139	0.46
1989	1267000	1325	-0.55	8079000	4192	-0.10	481000	138	0.63
1990	1823000	1583	-0.56	11071000	3916	0.07	1001000	318	0.20
1991	2710000	1571	-0.60	26192000	3842	0.57	1285000	234	0.26
1992	4430000	1307	-0.53	33221000	3893	0.19	1854000	234	0.10
1993	6898000	1027	-0.25	52755000	3613	0.29	4596000	372	0.09
1994	17480000	1029	-0.43	115303000	2829	0.75	7541000	309	-0.18
1995	34261000	1763	-0.58	210930000	3157	0.61	10237000	323	-0.31
1996	51432000	1548	-0.58	440752000	3294	0.82	26793000	299	0.14
1997	98253000	1463	-0.57	729197000	3184	0.58	43482000	268	0.04
1998	189333000	1146	-0.32	1129234000	3187	0.46	71085000	337	-0.13
1999	2300000000	1030	-0.42	1411543000	3517	-0.04	89170000	331	-0.36
2000	3800000000	1110	-0.39	1734024000	3481	-0.20	165016000	266	-0.01
2001	6800000000	769	-0.20	2038807000	3189	-0.31	223320000	218	-0.16
2002	8000000000	718	-0.22	3574999000	2816	-0.16	285663000	235	-0.19
2003	10100000000	1210	-0.42	4594231000	2892	0.06	518279000	329	0.05
2004	9000000000	1541	-0.57	4800000000	3310	0.02	451000000	396	-0.20
2005	9000000000	1344	-0.45	5400000000	3475	0.16	500000000	537	-0.31

Appendix Table A1 (cont): Nominal rate of assistance to ag products, Turkey, 1960-2005

Year	domestic price (TL)	border price (\$)	NRA
1960	n.a.	n.a.	n.a.
1961	n.a.	n.a.	n.a.
1962	n.a.	n.a.	n.a.
1963	n.a.	n.a.	n.a.
1964	n.a.	n.a.	n.a.
1965	n.a.	n.a.	n.a.
1966	4926	n.a.	n.a.
1967	5030	n.a.	n.a.
1968	5191	n.a.	n.a.
1969	5661	n.a.	n.a.
1970	6494	n.a.	n.a.
1971	7395	n.a.	n.a.
1972	8082	n.a.	n.a.
1973	8630	n.a.	n.a.
1974	11720	n.a.	n.a.
1975	13470	n.a.	n.a.
1976	14380	814	0.03
1977	15730	861	-0.20
1978	20600	1026	-0.40
1979	41430	1395	-0.32
1980	81570	1742	-0.45
1981	116020	1999	-0.55
1982	138450	1363	-0.44
1983	164380	4583	-0.85
1984	203050	1207	-0.55
1985	476000	1415	-0.30
1986	700000	n.a.	n.a.
1987	1068000	3652	-0.68
1988	1655000	2348	-0.54
1989	2102000	1534	-0.36
1990	2965000	1641	-0.31
1991	4218000	1543	-0.37
1992	6971500	1606	-0.40
1993	12178000	2251	-0.52
1994	46651500	2641	-0.40
1995	61840000	2241	-0.40
1996	113571000	1948	-0.26
1997	270876000	3116	-0.45
1998	494441984	2727	-0.25
1999	737043008	2223	-0.21
2000	1041550020	1891	-0.12
2001	1336525950	1375	-0.21
2002	1670203010	1032	0.07
2003	1895928960	1158	0.09
2004	n.a.	2406	n.a.
2005	n.a.	n.a.	n.a.

Appendix Table A2: Relative rate of assistance, Turkey, 1961 to 2005
(percent)

Year	NRA ag	NRA nonag	RRA
1961	-26	100	-63
1962	-13	24	-30
1963	-12	33	-34
1964	-24	86	-59
1965	-13	101	-57
1966	1	123	-55
1967	-23	267	-79
1968	-35	100	-68
1969	-18	113	-62
1970	10	75	-37
1971	-10	69	-47
1972	-8	41	-35
1973	-20	39	-42
1974	-7	24	-25
1975	-7	17	-20
1976	3	20	-14
1977	-13	25	-30
1978	-13	94	-55
1979	-11	122	-60
1980	-24	52	-50
1981	-27	42	-49
1982	-26	24	-41
1983	-49	23	-59
1984	-21	n.a.	n.a.
1985	1	n.a.	n.a.
1986	9	23	-11
1987	4	21	-14
1988	-5	19	-20
1989	10	16	-5
1990	17	14	3
1991	25	12	11
1992	23	10	12
1993	26	8	17
1994	8	6	1
1995	4	4	-1
1996	14	2	11
1997	19	2	17
1998	43	1	42
1999	25	1	24
2000	23	1	22
2001	1	1	0
2002	24	1	23
2003	39	1	38
2004	29	1	28
2005	31	0	30