Distortions to Agricultural Incentives in Europe's Transition Economies

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In a recent World Bank report on the Europe and Central Asia (ECA) region's trade patterns, performance and policies (Broadman et al. 2006), the priority trade policy reforms recommended reducing the mean and variance of tariffs and the tariff equivalents of non-tariff barriers (NTBs), and in particular reducing unilaterally the anti-export bias in the policy regime, especially in countries exporting primary products. To progress reform in those areas efficiently and effectively – and to see how recent policies line up with those of the European Union (EU) – requires better information on the extent of progress during the past decade or so and of current policy influences on incentives within and between sectors. At the start of their transition to market economies, policies in ECA countries greatly distorted producer and consumer incentives, especially for agricultural products. Those distortions have been reduced substantially in several countries. There are, however, large variations across the region; and distortions appear to be growing again in some of the countries. There is thus a need now to examine how policies affecting agriculture are evolving in this region, including as part of the adjustment to EU accession for ten of the transition economies in the region.

With that in mind, the main purpose of this study is to assess the changing landscape of agricultural protection or taxation patterns in the ECA region. The study is based on a sample of eleven Central and Eastern European (CEE) countries (the ten new EU members plus Turkey), and seven Commonwealth of Independent States (CIS) countries. Together these countries in 2000-04 accounted for 89 percent of the region's agricultural value added, 91 percent of its population and 95 percent of total GDP. Some key characteristics of those economies are shown in Table 1.1, drawn from the detailed compendium of indicators provided in Appendix 1.

Analyses of politically feasible agricultural subsidy and trade policy reform, or of policy options for coping with structural changes such as the current boom in energy raw material prices that has intersectoral Dutch-disease effects, need to be based on a clear understanding of the recent and current extent of policy interventions and the politico-economic forces behind their evolution. The second purpose of this study is thus to understand better the political economy of distortions to agricultural incentives in ECA countries. With that better understanding, the study's third purpose is to explore prospects for further reducing distortions to agricultural incentives and their implications for agricultural competitiveness and trade of the different ECA countries.

Now is especially timely for such a study, as eight ECA countries joined the EU in May 2004, two others joined on 1 January 2007, ten are in the process of joining the WTO, and all are currently assessing their policies unilaterally and as part of regional and multilateral trade negotiations.

The great diversity within the group of ECA countries – in terms of relative resource endowments and comparative advantages, stages of development and transition, agricultural and trade policy regimes, and (see Table 1.2) memberships of the EU, WTO, OECD and regional trading agreements – make the set of countries chosen a rich sample for comparative study. The central and eastern European country (CEE) sub-sample differs substantially from the rest of the former Union of Soviet Socialist Republics (USSR) that are now members of the Commonwealth of Independent States (CIS), having a higher per capita income (three-quarters of the global average, compared with one-third for the CIS) and a higher population density (half the global land per worker and 70 percent of the global agricultural land per capita, compared with 3.4 and 2.5 times, respectively, for the CIS).

Growth and structural changes during transition

Before examining policy changes, it is helpful to review the economic growth and intersectoral changes that have taken place in Europe's various transition economies over the past fifteen years. The initial years of transition from central planning to a more market-based economy in the ECA region saw production fall in the majority of sectors, before it recovered at varying rates from the mid-1990s. Table 1.3 summarizes macroeconomic performance the first half of the 1990s as compared with the subsequent decade for our two samples of ECA

countries and for the rest of the region. Real GDP for the region as a whole fell by almost 6 percent per year during 1990-94. The decline for the CEE sample was only 0.6 percent, while for the CIS sample it was 11 percent and for the residual non-studies countries 12 percent. By contrast, annual GDP growth in the 1995-2004 period averaged 2.7 percent: the CIS sample was slowest (2.2 percent), the CEE countries somewhat higher at 3.2 percent, and the residual enjoyed 5.1 percent.

Within those economies, agricultural value added measured at constant prices appears to have declined less rapidly than non-agricultural GDP in the early years of transition, but also to have grown less rapidly in the subsequent decade. The domestic terms of trade (the prices of their outputs relative to the prices of purchased inputs) apparently fell even more for farmers than for non-farmers, however, because agriculture's share of GDP measured in current prices declined even in the early transition period. Unlike in the central planning period, this did not allow faster industrialization but rather an expansion in the services sector, which increased from less than half the economy prior to 1993 to two-thirds by 2004 (Table 1.4).

The halving of agriculture's share of GDP in the ECA region between 1992 and 2004 was accompanied by only a one-quarter decline in agriculture's share of employment, according to FAO statistics (which are not always consistent with national data because of definitional differences). In all three sub-groups of countries the latter share now averages three times the former, or five times in the case of the CEE-8 countries that joined the EU in 2004 (compare Tables 1.4 and 1.5). This suggests much lower labor productivity on farms than in other employment.

The share of farm and food products in total merchandise exports also has fallen, by as much as half in some ECA countries (Table 1.6). When expressed as a ratio of that share for the world as a whole (the so-called revealed comparative advantage index), Table 1.7 suggests most countries of the region have lost comparative advantage in farm products over the past decade. That index varies greatly across the region though, from a low of less than 0.5 for mineral-rich Russia and densely populated Slovenia to more than 3 for Latvia and the Kyrgyz Republic.

The region as a whole has become more open as a consequence of moving from plan to market, notwithstanding the continuation of numerous barriers to trade. A common indicator is the value of goods and services expressed as a percentage of GDP. For most

countries of the region that percentage is now above the average for Western Europe (37 percent in 2004), with several countries approaching 60 percent (Table 1.8).

With this as background, we now turn to review briefly the evolution of policy under communism and then to examine how sectoral and trade policies have changed in the ECA region in response to, or as contributors to, the above macroeconomic and structural changes. In doing so, we make extensive use of estimates of nominal and relative rates of assistance to agriculture, so it is necessary to first summarize the methodology underlying those measures.

Methodology for measuring nominal and relative rates of assistance (NRA and RRA)

The NRA is defined as the percentage by which government policies have raised gross returns to producers above what they would be without the government's intervention (or lowered them, if NRA<0). There are several purposes for which NRAs can be used, and they affect the choice of methodology. This project seeks to achieve three purposes. One is to generate a comparable set of number across a wide range of countries and over a long time period, so the methodology needs to be both simple and somewhat flexible. Another purpose is to provide a single number to indicate the total net extent of transfer to (or from) farmers due to agricultural policies and another for the extent of transfer to (or from) consumers. This is what the OECD's PSE and CSE do, both of which can be negative when transfers from exceed transfers to the relevant group. The World Bank project's NRA and CTE are similar to the OECD's but with some important differences outlined below. And the third purpose is to enable modelers to use the NRAs for individual primary and lightly processed agricultural products as producer price wedges, and the CTEs as consumer price wedges, in single-sector, multi-sector and economy-wide policy simulation models by allocating those wedges to particular policy instruments such as trade taxes or domestic subsidies.

The NRAs are based on estimates of assistance to individual industries. Great care has gone into generating the NRA for each covered industry, particularly in countries where trade costs are high, pass-through along the value chain is affected by imperfect competition, and markets for foreign currency have been highly distorted at various times and to varying degrees in the past. Space limitations prevent all methodological details being provided here, but key points are mentioned below and further details can be found in Anderson et al. (2008) which is Appendix 2 in this book.

Most distortions to industries producing tradables come from trade measures, such as a tariff imposed on the cif import price or an export subsidy or tax imposed on the fob price at the country's border. Since an ad valorem tariff or export subsidy is the equivalent of a production subsidy and a consumption tax expressed as a percentage of the border price, that is what is captured in the NRA and CTE at the point in the value chain at which the product is traded. To get the NRA for the farmer, authors of the country studies estimated or guessed the extent of pass-through back to the farm gate, and likewise in going forward to the consumer at the retail level. These aspects among others differentiate the World Bank's measures from the OECD's, since the PSE is expressed as a percentage of the distorted price (hence will be lower than the NRA which is expressed as a percentage of the undistorted price) and both the PSE and CSE are measured at the farm-gate level whereas the World Bank's NRAs are provided at both the farmer and processor levels. To simplify the presentation, in what follows we focus just on the NRA at the primary producer (farmer) level.

The World Bank project decided against seeking estimates of the more complex effective rate of assistance (ERA) even though it is, in principle, a better partial equilibrium single measure of distortions to producer incentives than the nominal rate (Balassa and Associates 1971, Corden 1971). The ERA shows how value added rather than the gross value of production is affected, thereby taking into account differences across industries in the value added share of output as well as distortions to intermediate input prices. The advantage of the NRA over the ERA measure, however, is that the coverage could be wider given the budget limitation and lack of input data and input-output tables in many developing and transition economies for our time series. Moreover, unlike a generation ago, there are now many national and even global economy-wide computable general equilibrium (CGE) models that in principle can estimate the impact on value added for an industry of a complex set of input and output price distortions, and in any case require as parameters the separate nominal rates affecting both outputs and intermediate inputs. In practice farm input subsidies/taxes have, on average, a small overall impact on value added compared with output price distortions. Hence, for this project, country authors ignored trivial input distortions, but they captured any significant product-specific input price distortions by estimating their equivalence in terms of a higher output price and including that in the NRA for individual agricultural industries wherever data allow. They were also required to add non-product-specific distortions into the estimate for the overall sectoral NRA for agriculture as a whole.

The targeted degree of coverage of products for which NRA estimates are generated was 70 percent (the same as for the OECD's PSE coverage), based on the gross value of

production at undistorted prices. Unlike the OECD, this project did not assume the nominal assistance for non-covered products is the same as the average for covered products. This is because in developing countries at least, policies affecting the non-covered products are often very different from those for covered products. The nontradables among them, for example, are often low-quality food staples that are subject to no direct distortionary policies. The World Bank project therefore asked authors of the country case studies to provide three sets of 'guesstimates' of the NRAs for non-covered products, one each for the import-competing, exportable and nontradable sub-sectors. A weighted average for all agricultural products was then generated, using the values of production at unassisted prices as weights. For countries that also provide non-product-specific subsidies or taxes (assumed to be shared on a pro-rata basis between tradables and nontradables), they are then added to get a NRA for total agriculture (and for tradable agriculture, for use in generating the Relative Rate of Assistance, defined below).

How best to present regional aggregate NRA and RRA estimates depends on the purpose for which the averages are required. The present study is interested in the question of how distorted is overall agriculture in each country and in this region overall relative to other regions. For that purpose we generate weighted averages across commodities within each country and across countries within each sample group of countries. The weights used are the undistorted value of agricultural production at the farm gate for each of those primary products and each country.[1]

Farmers are affected not just by prices of their own outputs but also, albeit indirectly via factor market prices, by the incentives nonagricultural producers face. That is, it is *relative* prices and hence *relative* rates of government assistance that affect producer incentives. More than seventy years ago Lerner (1936) provided his Symmetry Theorem that proved that in a two-sector economy, an import tax has the same effect on the export sector as an export tax. This carries over to a model that also includes a third sector producing only nontradables, to a model with imperfect competition, and regardless of the economy's size (Vousden 1990, pp. 46-47). Thus if one can assume there are no distortions in the markets for nontradables, the overall distortion to agricultural incentives can be captured by the extent to which the tradable parts of agricultural production are assisted or taxed relative to producers of other tradables. By generating estimates of the average NRA for non-agricultural tradables,

[1] If one were interested in each polity as a separate observation for the purposes of cross-country political economy analysis, then a simple (unweighted) average across countries would be more appropriate.

it is then possible to calculate a Relative Rate of Assistance, RRA, defined in percentage terms as:

(1) $$RRA = 100[(1+NRAag^t/100)/(1+NRAnonag^t/100) - 1]$$

where $NRAag^t$ and $NRAnonag^t$ are the weighted average percentage NRAs for the tradable parts of the agricultural and non-agricultural sectors, respectively. Since the NRA cannot be less than -100 percent if producers are to earn anything, neither can the RRA. This measure is useful in that if it is below zero, it provides an internationally comparable indication of the extent to which a country's policy regime has an anti-agricultural bias, and conversely when the RRA is positive.

The cost of government policy distortions to incentives in terms of resource misallocation are greater the greater the degree of substitution in production (Lloyd 1974). In the case of agriculture which involves the use of farm land that is sector-specific but transferable among farm activities, the greater the variation of NRAs across industries within the sector then the higher will be the welfare cost of those market interventions. A simple indicator of that cost is the standard deviation of industry NRAs within agriculture. Therefore we report not only the weighted mean NRA for the industries covered within the farm sector (again using the values of production at unassisted farm-gate prices as weights), but also the standard deviation around that mean each year.

Each industry is classified either as import-competing, or a producer of exportables, or as producing a nontradable (with its status sometimes changing over the years), so that it is possible to generate for each year the weighted average NRAs for the two different groups of tradables. Those NRAs are used to generate a trade bias index, TBI, defined in percentage terms as:

(2) $$TBI = 100[(1+NRAag_x/100)/(1+NRAag_m/100) - 1]$$

where $NRAag_m$ and $NRAag_x$ are the average percentage NRAs for the import-competing and exportables parts of the agricultural sector. The TBI indicates in a single number the extent to which the typically anti-trade bias (negative TBI) in agricultural policies changes over time.

Distortions to incentives under the Communist regime

Incentives for agricultural producers and food consumers were massively distorted under Communist central planning, which was imposed from the 1920s in the former Soviet Union (FSU) and since the 1950s in Central and Eastern Europe. The distortions resulted from a combination of collective farm property rights, centrally controlled organization of

production allocation, processing, input provision and marketing, as well as the setting of prices unrelated to demand-supply conditions (leading to rationing), and state controlled trading and exchange rate systems.

Land and farms were put under central planning and in most countries (with the exception of Poland and former Yugoslavia) farming was forcefully organized in collective and state farms.[2] This collectivization process and the associated forced migration (and worse) of many landowners and farmers contributed to massive hunger and death before the Second World War in the Soviet Union. From Lenin to Stalin and through most of Khrushchev's regime, agriculture was heavily taxed. Capital was drained from an impoverished countryside to finance urban industrial growth (Ellman 1988). The dramatic implications – including millions of peasants dying of starvation – are documented in sobering detail in Conquest (1986).

This all changed at the end of the Khruschev regime and especially under Brezhnev. The leadership of the USSR decided to increase agricultural production, with a strong emphasis on livestock, and this was a policy also followed by many of the Eastern European countries of the Soviet Bloc (Liefert and Swinnen 2002). From the mid-1950s onwards, and especially in the 1970s and 1980s, large amounts of support and investment were directed to agriculture. By 1980, almost 30 percent of total Soviet investment was going into agriculture (Gray 1990). At the same time, consumer prices were set low and producer prices high, with the gap covered by direct subsidies to processing and trading companies or by soft budget constraints.

Consequently, from 1970 to 1990 livestock herds and output in these countries grew by between 40 and 60 percent. The rise in feed requirements for the growing herds stimulated the crop sector. In the late 1980s, the average annual output of feed grain in Poland and Hungary was up by half and one-quarter, respectively, compared with output in the late 1960s. In the USSR the feed requirements were so great that the country also became a substantial importer of feed commodities.

By 1990, per capita consumption of livestock products and foodstuffs in general compared favorably with many OECD countries, even though per capita incomes in Central and East Europe were much lower than the OECD average. This "achievement" came at a cost: large state subsidies, to both producers and consumers, were necessary to maintain the

[2] The focus of this study is primarily on the incentive distortions caused by policies affecting prices, trade and exchange rates, both directly and indirectly. We refer to other studies for analyses of the effects of property rights and farm organization distortions and reforms.

high levels of production and consumption. For example, by the end of the 1980s, direct budgetary subsidies to the agriculture and food economy were about 10 percent of GDP in the USSR and between 5 and 10 percent of GDP in most CEE countries. The bulk of these subsidies went to the livestock sector.

Calculating the net transfers to farmers and to consumers under the Communist regime is very difficult because of the large number of distortions caused by the state regulations of prices, production and consumption, exchange rates, marketing organizations, the indirect nature of some of the subsidies, etc. Several policies in particular need to be taken into account.

First, standard estimates of nominal rates of assistance (NRAs) underestimate the transfers to agriculture since they do not fully take into account input price effects. That is, they do not sufficiently capture the indirect price regulations as central planners set many input prices considerably below market prices, which resulted in very significant transfers to farmers.

Second, while it is generally true that producers of farm products were strongly subsidized by price settings towards the end of the Communist regime (in sharp contrast to the 1930s when farmers were highly discriminated against), the complexity of the distortions led sometimes to offsetting effects. For example, while agricultural producers in the latter 1980s were supported through high output prices and low input prices, at the same time overvalued exchange rates – not taken into account in the preliminary NRA estimates by the OECD (various years) – effectively taxed agricultural (and other) exporters. Correcting for this overvaluation would lead to significantly lower protection indicators (see below).

Third, and perhaps almost as importantly, agriculture was not alone in being subsidized, as most (heavy) industry was also subsidized or at least protected from import competition.

In short, the available fragments of empirical evidence indicates that, on aggregate and in real terms, there was a substantial net subsidization of agriculture relative to all other sectors as a group, although much more so for livestock producers than for grain and oilseed farmers.

The distortions affected not only farming but also consumption. The consumer tax equivalent (CTE), using the Anderson et al. (2008) methodology, was estimated around 40 percent for the CEE-8 (Ciaian and Swinnen 2008) and even larger for the Soviet Union (Liefert and Liefert 2008) for the same period. This would imply that consumers were taxed

substantially. However, that runs counter to the conventional wisdom that consumers were subsidized, and importantly so, under the Communist regime.

There are several reasons why these CTE may not be an accurate measure of actual consumer distortions under the Communist regime. The first reason is that the CTEs do not really measure consumer prices at the retail level, but rather at the farm-gate level. However, under the central planning system, subsidies to consumers occurred at the wholesale level as wholesalers were told to sell their food to retailers below their production costs, for which they received state subsidies. Using retail data would give very much lower CTEs. For example, Cook, Liefert and Koopman (1991) computed consumer subsidization/taxation using both farm level and retail level prices for the Soviet Union, and concluded that while CTEs as measured suggested large taxation of consumers, using retail prices indicated subsidization of consumers. Secondly, as with the producer assistance, exchange rate distortions also affect CTEs. With overvalued exchange rates effectively taxing exports and subsidizing imports, they benefit domestic consumers of tradable products but to an extent we cannot measure. Thirdly, there is another important factor influencing consumer taxation which is not captured by standard indicators. By restricting foreign imports and regulating trade, the Communist regime prevented its consumers from accessing higher-quality food products. Kostova Huffman and Johnson (2004) estimate that these welfare losses are equivalent to 50 percent to 75 percent of the direct subsidy benefits of consumers under the communist regime – and equivalent welfare gains with the subsidy cuts and liberalization after 1990. And fourthly, consumers unable to buy all they wanted at low prices had to incur high search and queuing costs.

Changes in distortions to incentives during transition

There have been dramatic changes in the agricultural and food policies and the distortions to agricultural incentives in the ECA region since the fall of the Berlin Wall in 1989 and the disintegration of the Soviet Union in 1991. Earlier in the 1980s, because of the Communist era subsidies, the agricultural sector had been a sizeable share of the economy (although there was considerable variation across the ECA region, with the agricultural employment share at the end of the 1980s varying from around 15-20 percent in Central Europe and the Baltics to around 40 percent in parts of Central Asia and the Balkans). The distortions favoring farming had caused a relatively large share of productive resources to stay in agriculture when they could have been more efficiently used in other sectors of the economy, in particular in the

underdeveloped service sectors. As a consequence, when domestic markets, trade and currency exchange regimes were liberalized, farm output declined dramatically, as a result of nominal input prices increasing much more strongly than output prices. Industrial output also declined, and by a similar order of magnitude, while the services sector – which had been severely constrained under the Communist system (at least as a stand-alone set of activities as distinct from being part of state-owned industrial enterprises) – grew rapidly after transition began (see Table 1.4).

Beginning in the early 1990s, many trade and price distortions were removed throughout the region. Price, exchange rate, and trade policies were all liberalized, subsidies were cut, hard budget constraints were introduced, property rights were privatized, and production decisions were shifted to companies and households. One consequence was that, on average, support to agriculture fell to very low levels in the early 1990s (as it did also for industrial production) – see Figure 1.1 and Table 1.9. Between 1992 and 1995, nominal assistance to agriculture averaged just 12 percent in the CEEC-10 and was below zero in Bulgaria and the three Baltic nations – as it was in Russia and Ukraine. By contrast, in Turkey, where nominal assistance averaged just 5 percent during 1986-89, its NRA rose to an average of 16 percent during 1992-95 and 25 percent in 1996-99.

The changes in policies and hence in rates of agricultural assistance have not been smooth, but rather characterized by stop-go phases and sometimes even reversals of previous reforms, as is apparent from Figure 1.1. The country studies in Parts II and III of this book provide detailed information and evidence on the multiple changes in policies that occurred in the various changes. Yet despite that heterogeneity of experiences, one can identify a couple of general phases in the policy changes.

Following its initial collapse, support to agriculture increased during the mid-1990s in some of the ECA countries. In the CEE this was driven by the explicit introduction of new support policies, while in Russia it reflected primarily exchange rate developments which, in the presence of institutional constraints which constrained the pass-through of border prices to farm-gate prices, pushed assistance rates up to high levels.

The increase in support started first in Central Europe where, after the radical liberalization in the early 1990s, political pressures induced governments to re-introduce a series of measures. The nominal rates of assistance increased from close to zero in 1992 to around 20 to 30 percent in the second half of the 1990s, but then they stabilized in the lead-up to EU accession in 2004. Between 2000 and 2003, average rate of assistance to agriculture in the CEE-8 was just under 25 percent (Figure 1.2), which is slightly less than half the rate of

assistance (including from programs somewhat decoupled from production) provided to farmers in the EU-15 at that time (see Josling 2007).

Further East, two economic changes in the late 1990s had major impacts on agricultural incentives. First, the Russian crisis and the associated devaluation of the Ruble (and some other currencies in the region) in the presence of imperfect pass-through, caused a strong decline in the estimated rates of assistance to agriculture. This macro-economic correction brought estimated assistance rates down to much lower levels – rates that probably reflected more accurately the actual support to agriculture even in the preceding years (had our country authors been able to capture the effect on the NRA of the overvalued exchange rates at the time).

Second, the hike in world energy and mineral prices, and general economic growth in the 2000s, improved many CIS governments' budgetary situations. The latter induced an increase in budgetary support to agriculture. For example, in Russia the government announced that agriculture would be one of the priority areas for more funding in 2005. Not all the additional funding is to go to subsidies, as some governments have plans to spend considerably on infrastructure and quality upgrading in agriculture. Also, rural incomes have improved because of better (and timely) payments of farm workers' wages and pensions to farm and rural workers, and because of improved rural services.

The combination of all these developments has led to a somewhat lower estimated NRA for agriculture in the ECA region as a whole for the four-year period since 2000 than in the period immediately before: 17 percent during 2000-03 compared with 22 percent in 1996-99 (Table 1.9). In Russia the average support level fell even more (from 25 to 13 per cent). However, during 2004 and 2005 supports have risen again, including in those countries that have since joined the EU even though formal estimates of their support levels are no longer published separately from the rest of the EU. Meanwhile, the NRA became less negative in Ukraine, appears to be close to zero also in Kazakhstan, but is probably much more negative in the rest of Central Asia (see Chapters 5 to 8 below).

Trade liberalization

International trade was strongly regulated under the centrally planned system. The Communist countries were integrated in the Council of Mutual Economic Assistance (CMEA) system, which was a planned inter-country trading regime, trading mainly with other communist countries. (One could think of the CMEA as the international version of the

domestic central planner.) The CEE countries were less integrated than the FSU countries, but still a large part of their trade volume went through the CMEA system. When the CMEA system collapsed in the early 1990s with the liberalization of the macro-economy and of trade policies, important changes in trade and financial flows resulted.

Trade liberalization reinforced the reallocation of production activities caused by the abolishment of central planning. Traditional international production allocations were no longer possible when trade had to be financed by hard currencies and when inputs were accounted for at real costs. It also allowed the importation of high-quality Western produce which had earlier been restricted. At the same time, the liberalization of the exchange rates removed discrimination against the sectors producing tradables.

The result was a major international reorganization of production activities. Initially this had a very negative impact on ECA producers, as the traditional export markets dwindled due to a lack of hard currency and because Western countries remained closed to ECA agricultural exports. At the same time the reduction of import constraints opened ECA markets for Western imports. In combination, this caused a worsening of the agricultural trade balance in ECA in the first half of the 1990s. Later on, however, agri-food trade intensified and growing exports (also to Western markets) contributed to the recovery in ECA.

An important development was the shift from centrally imposed extreme specialization (e.g., dairy production in the Baltics and cotton production in Central Asia) to more-diversified production systems and less dependence on single commodities in those countries.

Trade effects were only part of the international effects in the agri-food systems. Possibly even more important was the massive inflow of foreign direct investment in the ECA food industry, which contributed to a major restructuring and to improvements in food quality and productivity enhancements and investments in agriculture (Dries and Swinnen 2004). Most recently, the wave of foreign investments in the retail sector caused further restructurings of the agri-food system, with important implications for both producers and consumers (Dries, Reardon and Swinnen 2004).

Variations in distortion levels among countries and across commodities

After 1989, the CEE-8 countries moved first and most rapidly towards market-based systems. The reforms in the Balkan countries, such as Romania and Bulgaria, were initially half-

hearted and involved many inconsistencies during most of the 1990s, with government interventions continuing to heavily distort incentives. In the large CIS countries (Russia, Kazakhstan and Ukraine), governments continued important controls of the agricultural economy through a variety of interventions such as regional trade controls, input supply controls, and the continuation of soft budget constraints. While the Kyrgyz Republic liberalized relatively quickly, the other Central Asian countries have restricted reforms and liberalization. In particular, major controls still remain in place in such countries as Uzbekistan and Turkmenistan.

These differences are illustrated by the World Bank's price and market reform metric, summarized in Table 1.10. By 1997 Tajikistan, Uzbekistan, Turkmenistan and Belarus were lagging far behind the other ECA countries in their price and market reforms. However, there were substantial differences also within sub-regions, with Bulgaria for example lagging substantially behind the other CEE countries until more recently.

The progress in market reforms is not always correlated with the extent of distortions. On the one hand Slovenia, which was a front runner in liberalization and developing a market economy, has a very high level of farm producer support: its NRA is 80 percent on average in 2000-03, which is well above the EU15 rate of just over 50 percent in that period. On the other hand, much-slower reformers such as Bulgaria, Ukraine and Kazakhstan have much lower – even negative – NRAs.

Turkey, which has not been under Communist rule but nonetheless had a highly state-controlled food system (including price regulations and state processing companies) especially prior to the 1990s, had one of the higher level of support within ECA during 2004-05 (NRA of 30 percent, twice that for 1992-95) despite the fact that there was a major policy reform after 2000, including a shift assistance from market price support towards direct payments. That is, Turkey has had little success in reducing distortions to its agricultural sector, at least as measured by its NRA.

There are also major differences in distortions across commodities. In the 1980s virtually all commodities were supported, albeit some more than others. With transition the variation has remained, but in the CIS some commodities are now taxed. For example, by 2000-03, sugar, poultry and milk were the most highly protected commodities in the CEEC-10 and grains, beef and pork were the least assisted. Meanwhile, in Russia and Ukraine the range is even more extreme, form high positive assistance to livestock and sugar but high negative assistance to the production of the key feed inputs into livestock (coarse grains and oilseeds – see Figure 1.3). It happens that sunflower seed is Russia's dominantly produced

and traded oilseed and the only consistently exported commodity through the transition period. The case of Kazakhstan is even starker, where import-competing producers have been highly assisted while exporting industries have had to endure negative assistance such that, while the average NRA is close to zero in the 2000-03 period, a strong anti-agricultural trade bias persists.

Government intervention and controls are especially important in a few key commodities within each country, often because of (real or imagined) food security concerns or the need to raise government revenue to meet other priorities. This is, for example, the case for grains and oilseeds in Ukraine, Bulgaria and Russia, both for human consumption and to support (via low feed input prices) the production of livestock products. It has been true also for cotton in Uzbekistan, Tajikistan and Turkmenistan, where heavy taxation is distorting incentives for producers – although open or porous borders make the taxing of cotton exports difficult while tax rates vary across countries in that sub-region.

The trade bias index, show in equation (2) above, is one way of capturing the diversity of assistance rates across farm commodities. The more negative is that index, the greater the gap between assistance to import-competing farm industries and assistance (or in some cases effective taxation) of export industries. Table 1.11 suggests that the anti-trade bias has been a persistent feature of agricultural policies in the region throughout the transition period – indeed it has been worse in recent years than it was a decade earlier.

An even more comprehensive way to measure the extent of variance of rates across time is to calculate the standard deviation of NRAs for the covered products. These too have remained persistently high, and on average have been higher in recent years than in the early stages of transition (Table 1.12).

Changes in agricultural policy instruments

The total amount of support is an imperfect indicator of distortions to incentives, since different trade, price and subsidy instruments have different distortion effects. For example, using OECD data, Dewbre, Anton and Thompson (2001) estimate the relative distortions of a series of policy instruments. With market price support (MPS) as a benchmark of 100 percent they conclude that variable input subsidies are the most distortive (around 130 percent), followed by output subsidies (around 100 percent) and market price support (100 percent). Less distortive are area payments which require the planting of crops (around 35 percent) and

area payments which do not require planting of crops are much less distortive (around 10 percent).

In ECA, most support to agriculture was and, despite the reforms, still is provided via highly distortive and hence inefficient policy instruments. Under the Communist regime, output price distortions were complemented with heavy distortions in input prices, in particular low fertilizer and energy prices and subsidized irrigation, while in the 1990s the majority of farm support in the CEE countries was provided by output prices being kept above border prices. However, the share of support from those measures has declined over the past decade, consistent with developments within the EU15.

These policy changes are reflected in the composition of the assistance that farms received. Under the Communist system, price support and output subsidies were the main component in CEECs, accounting for more than 80 percent of the NRA. After the reforms in the early 1990s, the share of market support and output subsidies had declined substantially, falling below half. Since then it has grown again to around half of the NRA. The other important components of the NRAs of CEE countries were input subsidies (as much as one-quarter of the assistance), direct payments and non-product specific subsidies. Input subsidies include interest rate subsidies, credit guarantee schemes, fuel subsidies and support to purchase breeding materials.[3]

Water price regulations and subsidies are important policy instruments in the irrigated regions of Central Asia, but it was not possible in this study to estimate their impact on NRAs. Energy policies are still used to assist various sectors, for example in Russia, but since they do not favor agriculture in particular, and are becoming less important, they too have been omitted from our NRA estimates.

In the CIS countries, soft loans and debt forgiveness continue to play an important role, although fiscal constraints for most of the 1990s limited the government's ability to support farms by this means. The budgetary situation is changing in the 2000s though, as earnings from mineral and energy exports grow. Hence this has already and may well become an even more important source of government assistance to farmers in the near future.

[3] There has been a significant shift to less-distortionary assistance, i.e. direct payments based on area planted/animal numbers. Their share on total NRA increased during transition, from less than 5 percent in 1986 to 20 percent in 2000; but still far from the share in the EU (at 35 percent). Decoupled payments (payments based on historical entitlements) were almost zero in both the CEECs and the CIS before 2004, but this will change importantly in the coming years.

Overall, though, the difference between domestic and international prices is the main contributor to agricultural assistance rates. However, not all of those differences are due to price and trade policies. Also important are the costs of trading, to which we now turn.

Trade costs

The importance of trade costs is mentioned in all of the CIS country case studies in part III of this report. It is identified as providing high rates of 'natural' protection to import-competing industries and of 'natural' taxation of export-oriented industries, especially those involving bulky commodities. For example, the Kazakhstan study reports that this provides the equivalent of an export tax on wheat of between 10 and 25 percent. Also in the Kyrgyz Republic, the country that arguably has been the most reformist of all in Central Asia, policy-induced distortions are minimal yet there are large gaps between domestic and international prices.

These price gaps can result not just internationally (the difference between fob and cif prices at the country's border, including transit costs in the case of land-locked countries) but also domestically. The authors of the Russian study, for example, argue that the two main causes of incomplete price transmission between international and local (farm-gate) markets are interventions by regional officials and weak domestic infrastructure – both physical and institutional (including legal, which can result in poorly defined property rights and widespread corruption).

In the more-advanced countries, many of these constraints have been reduced in the course of transition. However, several of the country studies in Part II of this volume indicate that these pass-through problems and constraints on supply responses remain very important. The combination of physical and institutional trade constraints may lead to large differences in regional prices for commodities within a country.

Regional policy

An important policy issue in some of the large CIS countries is that regional authorities periodically impose trade controls when there are perceived (potential) shortages of grain or rising grain prices. These interventions add to price and quantity instability in other regions of those and neighboring countries, and dampen incentives for farmers to respond by increasing production as soon as shortages are imminent.

The importance of these regional interventions seems to differ with the political structure. For example, in Kazakhstan the very centralized political structure does not allow for much regional policy autonomy. In contrast, regional interventions in grain markets, including restrictions on product outflows and in setting margins, are a regular phenomenon in Russia. Moreover, as Russia's federal budget subsidies fell during the early years of transition, regional governments became the main source of budget subsidies to farms and became active in setting agricultural policy within their. The situation in Ukraine is mixed. As reported in that country chapter, some regional authorities declared bans on grain and oilseed exports in the late 1990s. While regional authorities had no legal right to impose such bans, the response of the central government was highly ambiguous, and regional interventions persisted.

Infrastructure

Infrastructural constraints prevent local surpluses to be exported to other regions or countries, thereby depressing prices in times of good harvests. Conversely, they prevent changes in international prices to be reflected in local markets. The Russia study argues that major changes in the price gap between local Russian regions and international markets are due mostly to limitations on arbitration and trade.

Corruption

In several countries, including Kyrgyz Republic, informal checks by local police are common. Trade costs increase by either paying bribes or by avoiding these by taking different and more-costly trading routes. Similarly, in the Ukraine, the removal of export quotas and licenses in 1996 – to comply with World Bank and IMF conditionality – induced those who had benefited from these regulations to search for alternatives. As a result, so-called "recommended" prices were implemented for many products. Although not officially binding, customs officials could insist on their application. To avoid costly delays, traders had to "resolve" their dispute locally with the officials or cultivate high-ranking contacts in Kiev who could guarantee immunity.[4]

[4] One of the reasons why enormous farm conglomerates have re-emerged in Russia is their ability to deal with government regulations. Evidence from Ukraine, Russia, and Kazakhstan indicates that an important constraint on enterprise development is rent-extraction by local governments, e.g. through taxation and ad hoc regulations. A major benefit of large (often vertically integrated) farming corporations in these countries is their ability to withstand pressures from local authorities. This leads to a paradoxical situation that instead of public policy assisting small farms to grow in a market environment dominated by large companies, farms need to be large to withstand public pressures (World Bank 2005).

These costs are even higher for land-locked countries such as Kyrgyz Republic. For most Kyrgyz exporters, the costs of traversing through Kazakhstan (and Uzbekistan) are more important than getting their goods to the Kyrgyz border, because of having to pay bribes to each policy stop in Kazakhstan. Stryker and Livinets (2002) report that out of the $4500 it costs to send a 20-ton truck of apples from inside the Kyrgyz Republic to Russia, between $1500 and $2000 (i.e. 33-44 percent) goes to "bribes and unnecessary transaction costs".

Human capital also continues to be a constraint. The initial openings of international markets for agricultural exports did not necessarily lead to increased exports as both the infrastructure and the people involved in processing and trading did not manage to capture potential gains. This has improved with transition as entrepreneurs invested in trading enterprises to benefit from arbitrage both in domestic trade and international trade – although not always through legal means.

Assistance to agriculture relative to other tradable sectors

ECA import tariffs on primary agricultural commodities are on average twice as high as average tariffs in industry, but only half as high as tariffs on processed food. This is true both for the CEE (Figure 1.4) and for CIS countries. It suggests that while the region's farmers receive more tariff protection from competition abroad than do non-agricultural producers, food processors are far more tariff-protected.

The import-competing producers are only part of each sector, however. When account also is taken of support for producers of exports in each sector, an overall NRA for all non-agricultural tradable industries can be used, together with the average NRA for agricultural tradable industries, to calculate the relative rate of assistance according to equation (1) above. The resulting estimates are summarized in Table 1.13 and Figure 1.5. In so far as the NRA for non-farm industries are positive, the RRA is lower than the NRA for agriculture. But in most cases the nonagricultural NRA is very low. Thus the overall NRA for primary agriculture during 2000-03 is estimated to be more than three times higher than for non-agricultural producers in ECA countries on average. Only in two countries – Bulgaria and Ukraine – was agricultural production assisted less than nonagricultural tradables (RRA<0). And in virtually all countries for which there is a time series, the RRA has been rising over time. Its average estimate is 11 percent for the ECA region in 2000-03, and looks have risen

considerably since then, implying that farmers' prices in the region are more than one-eighth above what they would be under free trade in all goods.

Changes in exchange rates

Changes in exchange rates (induced by both policy manipulations and structural or terms of trade changes) have had major impacts on agricultural incentives in ECA, as elsewhere. National currencies were heavily overvalued under the Communist regime, implicitly lowering the domestic price of exportable products including agricultural raw materials and food. Whether that overvaluation of the currency provided protection to import-competing producers, or taxed them, depends on the way the scarce foreign exchange was allocated to various groups of importers (see Appendix 2).

Exchange rate liberalizations in the early 1990s strongly affected relative prices for all producers, including farmers. The massive devaluations on their own would have provided a large incentive for the most-competitive producers to expand their production and exports. However, they were accompanied by reductions in food consumer subsidies and large hikes in prices of previously subsidized farm inputs, which largely offset the beneficial effects for farmers of the devaluation.

The subsequent gradual but steady revaluations of CEE currencies from the mid-1990s then reduced incentives for farmers in that sub-region to produce tradables, offsetting the effects of increases in direct agricultural assistance in the CEE countries. This helps explain why net exports of agricultural products from those countries (when expressed as a percentage of agricultural exports plus imports, as in Figure 1.6) have not grown over the past decade in response to increased assistance to agriculture.

By contrast, the Russian fiscal crisis of 1998 led to a steep reversal of the 5-year appreciation of its currency. That second exchange rate devaluation had major implications on several CIS countries in addition to Russia, improving the agricultural competitiveness of these countries.

The inefficiency of transfers

Some policy instruments are more efficient than others in transferring income. The inefficiency of policy instruments is typically correlated with the distortions that they cause. In general, the most efficient instruments (such as lump sum transfers) cause least distortions.

In contrast, price and trade interventions such as price supports or import tariffs are much less efficient: the OECD estimates that the transfer efficiency of such support is around 25 percent, meaning that for every dollar cost imposed on taxpayers or consumers, only 25 cents ends up as income gains for producers.

The efficiency of policies used by ECA countries is often low. Budgetary transfers to the food sector under the Communist system not only served to support farmers and consumers but also (as is still the case in Turkey) to cover for the inefficiencies of the agribusiness and food companies. The inefficiency associated with that set of transfers via the budget has been greatly reduced since these policies have been cut. However, a different set of inefficiencies has been introduced, such as transfers from consumers to producers by way of import restrictions. As can be seen from Table 1.14, up to the mid-1990s policies in all but Turkey and Slovenia imposed the equivalent of low or negative taxes on food consumers (CTEs), but thereafter the CTEs have become positive. Turkey's CTE was 27 percent by 2005, for example, compared with just 17 percent in the EU following the EU's policy re-instrumentation this decade towards more direct farm income supports. The 2003 CTEs in Romania and Slovenia were well above 17 percent and so presumably will fall during those countries' transition to the EU's Common Agricultural Policy.

Many of the direct subsidies to producers do not reach the farmer. This is due to a combination of institutional constraints and induced reactions to policy changes.

One reason is that some of the subsidies targeted to the farms dissipate to other groups as factor and output prices react to the policies. For example, increased assistance to agriculture in the CEECs, as a result of EU accession, has induced a substantial increase in factor prices, in particular land prices. As subsidies get capitalized into the value of farm land this benefits landowners rather than farms, many of whom are urban households (Ciaian and Swinnen 2006). In cases where the landowners are not the tillers but rather urban households, income and wealth distribution could be worsening rather than improving as a result of these price-support programs. On average, early empirical evidence from CAP subsidies in the new EU member states shows that farm incomes have gone up considerably but that land rents have increased strongly as well.

Part of the transfer leakages can be to food industries or to agribusiness. This was certainly the case under the communist system, but even now, with unequal bargaining power in the food chain between processors and farmers, agribusiness companies also extract some of the benefits that would otherwise have gone to primary producers.

Another problem is that the subsidies go to a subset of the farms, typically those with the best political connections. For example, the Ukraine study points out that there is considerably variation among farms in how they benefit (or not) from agricultural policies. For example, 75 percent of the production subsidies provided to livestock producers in Ukraine in 2004 ended up being captured by 7 percent of livestock-producing farms (Zorya 2006). It is argued that rent seeking underlies much of agricultural policies in Ukraine, as a small group of individuals and firms who stand to gain much from export and import regulations have a large influence on policy. Similarly, in Bulgaria much of the grain policy rents have gone to large grain traders and wholesalers. In Turkey too, where the agricultural sector as a whole has been heavily supported, traditionally much of the support did not reach farmers: there are extensive 'leakages' to inefficient organizations that are supposed to transfer the support to farmers.

The pass-through to farmers of changes in international prices, or in rates of assistance at the trader or processor level of the value chain, is limited in numerous ECA countries. This is due to a combination of poor institutional and physical infrastructure, corruption, inadequate human capital, and policy interventions, all of which reduce the 'tradability' of certain commodities. These constraints are very important in some of the countries.

Within the larger countries of the region, such as Russia and Ukraine, there are also intra-national regional authorities that periodically impose trade controls when there are perceived (potential) shortages of grain or rising grain prices. These interventions add to price and quantity instability in other regions of those and neighboring countries, and dampen incentives for farmers to respond by increasing production as soon as shortages are imminent.

A further constraint on pass-through is the incompatibility between the large-scale input supplying and food processing firms on the one hand, and the growing proportion of small farmers on the other. This constraint was particularly important in the early stages of transition and still is in some of the less-developed parts of the ECA region.

Human capital constraints have been influential in both business and government. It matters in business because, in the early stages of the transition, entrepreneurs quickly invest in trading enterprises to benefit from arbitrage opportunities in domestic and international trade (not always through legal means). It matters also in government, because of the continued weakness of intellectual capacity for both policy analysis and policy understanding. This was important even in some of the more-affluent CEE countries in the early to mid-1990s, where it contributed to various ad hoc policy interventions and policy

inconsistencies; and it continues to be pervasive and problematic in some of the poorer CIS countries.

Forces behind transitional policy choices

Several political economy stylized facts that are widely observed in market economies – for reasons explained in, for example, Anderson and Hayami (1986), Anderson (1995), Swinnen (1994) and de Gorter and Swinnen (2003) – are also found in the post-transition ECA countries. On average, the data indicate that farmer assistance tends to be higher in higher-income countries, and in countries with weaker comparative advantage in agriculture. In ECA we observe the same correlations (Table 1.15), so it is likely that similar political-economic interactions and mechanisms are at work in this region as in other parts of the world.

Interestingly, though, Chapter 2 below reports that those correlations are becoming weaker over time among the CEECs. Why they are becoming less significant in the course of transition is not entirely clear, but some insights emerge in the following discussion of the forces that underlay the political economy of agricultural taxation and assistance in the ECA region.

Causes of rent extraction

Heavy negative government intervention in the form of depressed incentives tends to be concentrated on commodities that have the potential to provide export tax revenue for the government.

This is especially the case in the cotton sectors of Uzbekistan, Turkmenistan and Tajikistan. There, as in a number of African countries, the government controls the cotton chain so as to extract rents, thereby depressing farmers' prices and production incentives. There is a clear division in Central Asia between the roughly neutral policy towards cotton in Kazakhstan and the Kyrgyz Republic (where cotton exports used to be a relatively modest share of exports) on the one hand, and on the other the extensive taxation and extraction of rents from cotton in Turkmenistan, Uzbekistan, and Tajikistan (countries where cotton traditionally was a very important export tax resource). In Turkmenistan and Uzbekistan governments use state monopoly powers over marketing to transfer substantial resources out of agriculture. Most of the transfers in Uzbekistan appear to go to general government revenue, whereas in Turkmenistan much is wasted (e.g., in inefficient cotton mills with

negative value added) or accrues to secret accounts under the President's personal control. Moreover, recently some potentially important reforms have been introduced in Uzbekistan to reduce some of the distortions to farm incentive, while none have taken place in Turkmenistan. In Tajikistan the rent distribution is more opaque, but equally detrimental to farms, as a coalition between the government and a monopolistic private trading company has caused depressed prices and incentives for farmers. Not surprisingly, farmers have responded sharply to these incentive distortions, both in area and output: with rapid growth in Kazakhstan and Kyrgyz Republic, and by contrast with declines or stagnation in the other countries (Table 1.16).

The grain (and oilseed) export sectors of Ukraine, Bulgaria, and the grain-surplus regions of Russia are similarly characterized by heavy government regulation and interventions. In traditional grain-exporting countries such as Ukraine and Bulgaria, the grain sector has disproportionate political significance – for historic and psychological reasons. For example, in the mid-1990s in Bulgaria, ministers of agriculture had to resign regularly following reports of grain shortfalls or unregulated exports threatening the local grain supply. In Ukraine, ad hoc grain market interventions continued in recent years.

Opportunities for rent seeking from distorted policies inhibit policy reform, as the few who benefit disproportionately from the existing distortions lobby strongly for their continuation. This applies to various policies, such as cotton regulations in Central Asia, grain trade regulations in Bulgaria, Ukraine, and Russia, and water policies in Central Asia. But it also applies to several policies in countries in which benefits go a specific group of farms. For example, the continuation of soft budget constraints in the large CIS countries, and the failure of governments to enforce bankruptcies and enforce strong land rights all disproportionately benefit large farming companies, while smaller family farms are often hurt by these policies. In Turkey, agricultural para-statal companies and marketing cooperatives benefit from "farm support" and are major lobbyists in favor of market regulations and support.

Sometimes specific political, regional, or ethnic coalitions play a role. For example, in Kazakhstan many residents of the rich northern grain regions were Russian and German. After independence, power shifted to Kazakh nationals, limiting their influence in government and causing many of them to emigrate. Another recent example is from Bulgaria, where the resistance of the government to privatize the tobacco processing companies and its decision to allocate a disproportionate amount of subsidies to tobacco growers is due to the

fact that the Turkish minority in Bulgaria is strongly active in the tobacco sector, and holds the key positions in the Ministry of Agriculture.

Causes of increases in support during transition

The increases in agricultural support in ECA – in the second half of the 1990s in CEE and more recently in the CIS – are the result of the interaction of domestic political forces with international events. The increase in farmer assistance in CEE countries was likely caused by the 'normal' domestic internal pressures that are brought to bear in a contestable political environment which result in rises in agricultural protectionism as per capita income increases and as agricultural comparative advantage declines. In this period it was a case of reversing somewhat the overshooting in reform during the first few years of transition.

Another factor that is playing a role is the overlay of the EU accession process, which is encouraging CEE governments to target the levels of support expected in the EU by the end of the phase-in period of accession, so as to maximize the transfer of benefits from Brussels. However, it appears that in the years before accession the EU accession process had more impact on the introduction of new support instruments than on the overall level of support, probably because all the cost of that support has to be borne within the national economy prior to EU accession (Swinnen 2002).

Another contributing factor was the improvements in the government's budgetary situation, which allowed more subsidies to be given to farmers than was possible in the early years of transition. This factor has played a role throughout the ECA region, but in particular in Russia and some of its neighbors where recovery from the post-1998 fiscal crisis has been aided by windfall gains from the dramatic rise in the prices of their exports of energy raw materials. This factor was stronger in those countries where governments have more access to mineral resources, such as in Russia (oil and gas), Kazakhstan (oil), Turkmenistan (gas).

Crises, political change, and reforms

General political and economic crises have played an important role in inducing changes in agricultural distortions. The most obvious example is the fall of the Communist regime and the disintegration of the Soviet Union – and the central directives coming from Moscow. However, even later there are several examples where more general crises have triggered changes. Most often the policy reforms come only after new elections induce a change in government, reflecting changed electoral preferences.

For example, in Romania and Bulgaria, important progress in the removal of distortions and market reforms only occurred in the late 1990s after electoral change, caused in Bulgaria by the financial crises in 1996, brought reform-minded governments to power. In Ukraine, important reform progress was made in the years after the 1999 election in which the large farm lobby fell out with President Kuchma, who consequently introduced a series of important reforms which the farms had successfully opposed previously.

However, democratic political change is not a sufficient condition in itself for better agricultural policies. For example, in both Ukraine and in Kyrgyz Republic, the recent political changes (the “Orange Revolution” and the “Tulip Revolution”, respectively) have not contributed to better agricultural policy. In fact the Ukraine government seems to have reversed, while in Kyrgyz republic change has mostly resulted in more instability, while relatively little distortions remain in agriculture.

Impact of international agreements

EU accession, both prospective and then actual, has had obvious and profound influences on policy choices. The CEE-8 countries that joined in May 2004 have raised domestic agricultural and food prices up towards EU-15 levels. An important part of the EU farm subsidies are under the form of direct payments. CEE-8 farms receive considerably less of these subsidies than those received by EU-15 farmers. The CEE-8 subsidies will gradually increase, reaching EU-15 levels only by 2010. Another important difference is that these subsidies in the EU-15 will be given on a per farm basis (single farm payments) earlier than will be the case for the CEE-8.

The CEE-8 countries have been induced also to undertake major regulatory improvements to stimulate their markets, including private investments in the food chain and public rural infrastructure investments. Their trade policies have likewise changed so as to allow free access for all products from other EU-27 member countries and, in most cases, also freer access for non-agricultural products from non-EU countries (the latter because the common external tariff typically was lower than that previously applying in acceding countries).

The EU accession process has not caused a major increase in food prices in the CEE-8 countries. One reason is the increased competition on consumer markets in the CEE-8 with the full opening of agri-food markets to imports, and with the massive inflow of foreign direct investment in the retail sector.

The impacts of other international agreements (including WTO accessions) have varied. The Czech Republic, Slovakia, Hungary, Poland, Romania, Slovenia and Turkey have been members of the World Trade Organization (WTO) since its creation in 1995. Bulgaria, Estonia, Lithuania, Latvia, Kyrgyz, Armenia, Georgia, Albania joined the WTO later, while Ukraine, Russia, and Kazakhstan are still in various stages of negoting their WTO accession.

WTO accession has not strongly disciplined ECA countries that were founding members in 1995.[5] For those that had to negotiate their entry in the latter 1990s, the constraints on introducing or maintaining distortions are more serious. And for those large ECA countries still in the process of negotiating their accession, notably Russia, Ukraine and Kazakhstan, the WTO membership has been even tougher in their demands (following the tough stand taken towards China in its accession). Whether that latter stance will prove an agricultural trade-liberalizing force remains to be seen, but at least it will provide a ceiling on the extent to which agricultural protection and subsidies may be raised in the future.

For the CEECs, the most important WTO impact has been indirect: in anticipation of eastward enlargement, the EU was forced to introduce major changes to its Common Agricultural Policy, which in turn has affected post-accession agricultural distortions in the CEECs.

A further and somewhat erratic influence has been the regional trading arrangements among the ECA countries. These include the Eurasian Economic Community (EAEC), the Central European Free Trade Area (CEFTA), and the Baltic Free Trade Area (BFTA). However, the impact of these agreements on reducing agricultural policy distortions has generally been limited since the agreements include many exceptions for agricultural and food products, and especially for so-called “sensitive products” which made up a substantial share of production. Moreover, Central Asian countries such as Kazakhstan and the Kyrgyz Republic have been reluctant to join the EAEC, because it would impose Russia’s trade and customs preferences on them.

Influence of international institutions

The role of other international institutions was very important at the start of transition, as it provided policy reform guidance in all these countries. However, in more recent years this advice has been less effective. For those joining the EU, policy advice from Brussels was

[5] For example, the applied tariffs are significantly below bound tariffs in many CEECs. This suggest that these CEECs have not been constrained by the WTO agreements (Bacchetta and Drabek 2002). For the CEECs that joined early, their commitments were based on the high support levels of the 1980s and therefore caused little constraints on their policies in the 1990s; for the others the restrictions were more severe.

perceived as more relevant. This is especially, but not only, the case for the EU accession countries. Also for those countries aspiring to join the EU (such as most of the Balkan countries, and even further east such as Ukraine), or those seeing the accession countries as models for their own development strategies, policy advice from Brussels is taken seriously. Another reason is that in many of the ECA countries of southeast Europe and the CIS, their improved fiscal and macroeconomic situations have made them less beholden to those international financial institutions requiring reforms as a condition of providing loans or financial assistance.

Human capital constraints

A factor which is mentioned in some cases as a constraint on policy reform is the continued weakness of intellectual capacity for both policy analysis and policy understanding. While this was important in many of the CEE countries in the mid-1990s where it contributed to various ad hoc policy interventions and policy inconsistencies, the emergence of a new generation of agricultural economists, policy advisors and politicians has largely overcome this constraint. However, in some of the less advanced countries this constraint seems to be very pervasive and problematic. For example, the Ukraine study in this volume emphasizes that this factor is a major constraint directly and indirectly on the development of a better and more consistent policy framework.

Prospects for reducing distortions and implications for agricultural competitiveness and trade

As is clear from the previous chapters, there have been *major reductions in distortions to agricultural incentives in ECA* over the past two decades. An enormous amount has been accomplished in removing distortions to agricultural incentives in ECA as dramatic changes have dismantled the most distortionary policy regimes. In many of the ECA countries, average protection levels are now relatively low.

However, there is still *substantial room for further reduction of distortions* to agricultural incentives. Some of the ECA countries still have a considerable way to go in removing distortions and others have introduced new distortions. Improving policies and reducing distortions can be done through various means: overall reductions in support policies, shifting support to less-distortive policy instruments, focusing budgetary means to

public good type of investments rather than farm subsidies, public good investments in infrastructure and institutions to reduce trade costs, shifting from a quantity-based to a quality-based policy paradigm, etc.

In terms of further reductions in policy distortions, *some of the most distortive cases concern taxation of agriculture* (e.g., the control and rent extraction in the cotton sectors in some Central Asian countries). Removing those distortions would allow a substantial improvement in incentives to domestic producers. Some progress has been made in recent years, but much more can be done.

Those countries for which EU accession is unlikely to happen even in the medium future (such as for Turkey, Ukraine and many of the Balkan countries) should focus their policy attention in the near term *on efficiency improvements in both their policies and their agricultural economies*. Neither of these is inconsistent with the objective of EU accession. The EU has moved in recent years to more decoupled farm support, and itself is demanding that countries both move in that direction and improve the efficiency of their farms and food companies.

From this perspective, it is important to point to the *importance of other reforms*, such as macroeconomic and regulatory reforms to stimulate food industry investment, labor market reforms to enhance off-farm employment opportunities, and credit reforms to stimulate access to rural credit.

A crucial component of this should be a *shift in the policy paradigm from policies focused on quantity and minimum standards to a policy framework focused on quality and high standards*. Safety and quality standards are increasingly crucial components of modern food chains, both domestically and internationally. With emerging technologies and the growing influence of large retail and processing chains, demand for traceability and high quality standards will further increase. These developments will also pose new policy challenges in terms of equity (exclusion and rent extraction) and efficiency (contracting problems, quarantine trade disputes, etc). Traditional trade and price policies are not fit to deal with the challenges posed by these modern chains.

The same policy framework should be promoted in countries further east, which include those that are likely to spend more funds on agriculture in the coming years as their fiscal situation further improves. *Increased funding should be focused on upgrading infrastructure, on quality and efficiency of the agri-food system, and on the introduction or improvements of a variety of institutions necessary to support rural markets*. In several of the poorer and the larger ECA countries, institutional and infrastructure problems, as well as

corruption, remain a major constraint to trade and thereby distort farm incentives. Therefore policies and projects should target these constraints to reduce the trade costs. This could have major positive effects on farm incentives and incomes.

Competition and anti-trust policy is an important area for policy attention. In supply chains where farms have to sell their products to trading, processing, and retailing companies, the ability to choose freely between companies is of crucial importance in getting better conditions for farms. This applies across the ECA region where monopoly buyers (state-owned or private) push down prices and contract conditions, although the source of anti-competitive behavior and policy details are likely to differ, e.g. between the increasing dominance of large retail chains in Central Europe versus some of the government controlled cotton chains in Central Asia.

An important policy finding is that *exchange rate developments have had and will continue to have a very important impact on farmers' incentives*. Part of these exchange rate effects were caused or influenced by policy (e.g., government used to set exchange rates under the Communist regime, and pegged exchange rates still apply in some countries now), or they were a consequence of macroeconomic developments. In either case, over the past two decades exchange rate distortions and adjustments have had very substantial impacts on incentives, both before and during transition. This factor is likely to continue to be important, in particular in countries where the continued high energy prices may lead to 'Dutch disease' effects for agriculture.

It is important to realize though that the *political economy forces* identified in this study may *constrain the prospects for further reducing distortions* to agricultural incentives in the foreseeable future, because of changes in the pressure and the constraints for policy reform. First, the accession of the CEE countries to the EU has increased their levels of farm assistance, although they will face more competition within the enlarged EU. Reducing CEE farm assistance in the future will not happen without reducing EU protection levels. Some reforms are currently underway in the EU (e.g., the cut in EU sugar price support and the shift from per hectare payments to single farm payments). However, the suspension of the WTO's Doha trade negotiations reduces the pressure for further reforms. Second, in the mineral- and energy-rich CIS states, the rise in export earnings reduces budgetary constraints on governments inclined to give assistance to farmers as national incomes grow. Third, overall income growth will also induce political economy pressures to increase support to agriculture, suggested by positive relationship between agricultural protection and economic development, which this report also finds in ECA.

These policy constraints also have *implications for the impact of international institutions and organizations*. The role of other international institutions was very important at the start of transition as it provided policy reform guidance in all these countries. However, in more recent years this advice has been less effective. For those ECA countries wanting to join the EU, EU accession (or wider integration) has taken priority. In the future, other ECA governments also will be in a stronger position to bargain with international institutions such as the IMF and the World Bank, because their countries' growth and improved fiscal positions will make them less beholden to conditions imposed by international institutions.

From that perspective the *WTO's multilateral trade negotiations are a unique opportunity to impose discipline* on agricultural policy distortions. This may be especially relevant for agricultural policy in Russia, Kazakhstan and Ukraine, since larger economies tend to be required by the WTO's current members to reform more than smaller ones. However, the WTO is unlikely to be a panacea. For example, in the case of Russia, the WTO may impose some constraints on future policies, but it is unlikely to have much impact on current policy because none of the key instruments of assistance currently used would be restricted greatly.

Reform challenges posed by regional policy interventions also deserve attention. Russian regional agricultural policies that affect markets are largely ad hoc and nontransparent, and are important distortions. However, eliminating these policy interventions would require fundamental reforms of Russia's political system, including a transformation of attitudes and behaviors involving governance. Accession to the WTO is unlikely to have much effect on regional policy interventions in the medium term.

In summary, *there are key policy areas where the World Bank can still play an important role*. In the area of infrastructure and institutional improvements the World Bank has both expertise and instruments to assist the countries. Also in the field of policy analysis there is much room to contribute, both directly and indirectly in preparation for WTO accession and for negotiating or re-negotiating regional integration agreements.

References

Anderson, K. (1995), "Lobbying Incentives and the Pattern of Protection in Rich and Poor Countries", *Economic Development and Cultural Change* 43(2): 401-23.

Anderson, K. and Y. Hayami (eds.) (1986), *The Political Economy of Agricultural Protection: East Asia in International Perspective*, London: Allen and Unwin.

Anderson, K., M. Kurzweil, W. Martin, D. Sandri and E. Valenzuela (2008), "Methodology for Measuring Distortions to Agricultural Incentives", Appendix 2 in this volume.

Bacchetta, M. and Z. Drabek (2002), "Effects of WTO Accession on Policy-Making in Sovereign States: Preliminary Lessons from the Recent Experience of Transition Countries", Staff Working Paper DERD-2002-02, Geneva: WTO.

Balassa, B. and Associates (1971), *The Structure of Protection in Developing Countries*, Baltimore: Johns Hopkins University Press.

Corden, W.M. (1971), *The Theory of Protection*, Oxford: Clarendon Press.

Broadman, H. et al. (2006), *From Disintegration to reintegration: Europe and Central Asia in International Trade*, Washington DC: World Bank.

Ciaian, P. and J. Swinnen (2006), "Land Market Imperfections and Agricultural Policy Impacts in the New EU Member States: A Partial Equilibrium Analysis." *American Journal of Agricultural Economics* 88(4): 799-815.

Conquest, R. (1986), *The Harvest of Sorrow*, London: Oxford University Press.

Cook, E.C., W.M. Liefert, and R.B. Koopman (1991), *Government Intervention in Soviet Agriculture: Estimates of Consumer and Producer Subsidy Equivalents*, Staff Report No. AGES 9146, Economic Research Service, Washington DC: U.S. Dept. of Agriculture, August.

Corden, W.M. (1971), *The Theory of Protection*, Oxford: Clarendon Press.

De Gorter, H. and J. Swinnen (2002), "Political Economy of Agricultural Policies", Ch. 36 in B. Gardner and G. Rausser (eds.), *Handbook of Agricultural Economics*, Volume 2, Elsevier Science: North Holland, Amsterdam.

Dewbre, J., J. Antón, and W. Thompson (2001), "The Transfer Efficiency and Trade Effects of Direct Payments", *American Journal of Agricultural Economics* 83(5): 1204–1214.

Dries, L. and J. Swinnen (2004), "Foreign Direct Investment, Vertical Integration and Local Suppliers: Evidence from the Polish Dairy Sector", *World Development* 32(9): 125-1544.

Dries, L., T. Reardon and J. Swinnen (2004), "The Rapid Rise of Supermarkets in Central and Eastern Europe: Implications for the Agrifood Sector and Rural Development", *Development Policy Review* 22(5): 525-56.

Ellman, M. (1988), “Contract Brigades and Normless Teams in Soviet Agriculture”, pp. 23-33 in J.C. Brada and K.-E. Wädekin (eds.), *Socialist Agriculture in Transition: Organizational Response to Failing Performance*, Boulder: Westview Press.

Gray, K.R. (ed.) (1990), *Soviet Agriculture: Comparative Perspectives,* Ames: Iowa State University Press.

Josling, T. (2007), ‘Distortions to Agricultural Incentives in the Western Europe’, Agricultural Distortions Working Paper xx, World Bank, Washington DC, forthcoming December, see www.worldbank.org/agdistortions

Kostova Huffman, S. and S.R. Johnson (2004), “Impacts of Economic Reform in Poland: Incidence and Welfare Changes Within a Consistent Framework”, *Review of Economics and Statistics* 86(2): 626-636.

Krueger, A.O., M. Schiff, and A. Valdes (1991), *The Political Economy of Agricultural Pricing Policy*. London: Johns Hopkins University Press for the World Bank.

Lerner, A. (1936), ‘The Symmetry Between Import and Export Taxes’, *Economica* 3(11): 306-13, August.

Liefert, W. and J. Swinnen (2002), “Changes in Agricultural Markets in Transition Economies”, Agricultural Economic Report No. AER806, Economic Research Service, Washington, DC: U.S. Dept. of Agriculture.

Lloyd, P.J. (1974), ‘A More General Theory of Price Distortions in an Open Economy’, *Journal of International Economics* 4(4): 365-86, November.

OECD (various years), *Agricultural Policies, Markets and Trade in the Central and Eastern European Countries and the New Independent States: Monitoring and Outlook,* Paris: Organization for Economic Co-operation and Development.

OECD (2006), *Agricultural Policies, Markets and Trade in the Non-Member Countries: Monitoring and Outlook 2006,* Organization for Economic Co-operation and Development’s Global Forum, Paris, 20-21 November.

Reardon, T. and J. Swinnen (2004), “Agrifood Sector Liberalization and the Rise of Supermarkets in Former State-Controlled Economies: Comparison with Other Developing Countries”, *Development Policy Review* 22(5): 515-524.

Sadler, M. (2006), “Comparative Analysis of Cotton Supply Chains in Central Asia”, in J. Swinnen (ed.), *Case Studies on Vertical Co-ordination in Agro-food Chains in Europe and Central Asia,* ECSSD, Washington DC: World Bank.

Sandri, D., E. Valenzuela and K. Anderson (2008), “Economic and Trade Indicators for the ECA Region, 1990 to 2004”, Appendix 1 in this volume.

Stryker, D. and S. Livinets (2002), “CIS7 Rural Poverty and Growth Study: Rural Marketing in Kyrgyz Republic”, report prepared for the World Bank, Washington DC.

Swinnen, J. (1994), “A Positive Theory of Agricultural Protection”, *American Journal of Agricultural Economics* 76(1):1-14, February.

Swinnen, J. (2002), “Transition and Integration in Europe: Implications for Agricultural and Food Markets, Policy and Trade Agreements”, *The World Economy* 25(4): 481-501.

Swinnen, J. and S. Rozelle (2006), *From Marx and Mao to the Market: The Economics and Politics of Agricultural Transition,* New York: Oxford University Press.

Vousden, N. (1990), *The Economics of Trade Protection*, Cambridge: Cambridge University Press.

World Bank (2006), *The Dynamics of Vertical Co-ordination in Agro-food Chains in Europe and Central Asia.* ECSSD, Washington DC: World Bank.

Zorya, S. (2006), “Improving Agricultural Fiscal Policy in Ukraine”, paper prepared for the Public Expenditure Review of Ukraine 2005-06, Washington DC: World Bank.

Table 1.1: Key economic and trade indicators, ECA countries, 2000-04

	Share (%) of world:			National rel. to world (=100)			Primary agric trade specialization, 2000-02 (X-M)/(X+M) (world av =0)
	Pop'n	Total GDP	Agric GDP	GDP per capita	Agric land per capita	Revealed ag & food comp. advantage	
Slovenia	0.03	0.07	0.04	216	32	52	-0.68
Czech Rep.	0.16	0.22	0.19	135	52	61	-0.44
Hungary	0.16	0.20	0.14	122	72	90	0.40
Estonia	0.02	0.02	0.03	102	78	199	-0.38
Poland	0.62	0.57	0.47	93	57	105	-0.39
Slovak Rep.	0.09	0.07	0.09	92	57	57	-0.50
Lithuania	0.06	0.04	0.08	80	125	176	-0.21
Latvia	0.04	0.03	0.03	76	132	364	-0.51
Turkey	1.12	0.62	1.97	55	70	131	0.09
Romania	0.35	0.15	0.49	41	84	74	-0.06
Bulgaria	0.13	0.05	0.15	39	86	143	0.37
CEE sample	**2.75**	**2.05**	**3.67**	**74**	**70**	**98**	**-0.09**
Russia	2.34	1.10	1.58	47	186	53	-0.46
Kazakhstan	0.24	0.08	0.18	33	1737	76	na
Ukraine	0.78	0.13	0.46	17	107	112	na
Turkmenistan	0.07	0.01	0.06	18	881	92	na
Uzbekistan	0.41	0.03	0.27	8	134	na	na
Kyrgyz Rep.	0.08	0.00	0.05	6	268	390	na
Tajikistan	0.10	0.00	0.03	4	85	192	na
CIS sample	**4.02**	**1.37**	**2.62**	**34**	**270**	**na**	**0.02**
Other ECA	**0.64**	**0.19**	**0.61**	**29**	**82**	**166**	**0.41**
All ECA	**7.43**	**3.60**	**6.90**	**48**	**179**	**na**	**-0.06**

Source: Sandri, Valenzuela and Anderson (2008), compiled mainly from World Bank's *World Development Indicators.*

Table 1.2: Memberships of international organization, ECA countries, 1993 to 2004

	EU	WTO	EAEC
Czech Rep.	since 2004	since 1995	
Estonia	since 2004	since 1999	
Hungary	since 2004	since 1995	
Latvia	since 2004	since 1999	
Lithuania	since 2004	since 2001	
Poland	since 2004	since 1995	
Slovak Rep.	since 2004	since 1995	
Slovenia	since 2004	since 1995	
Bulgaria	since 2007	since 1996	
Romania	since 2007	since 1995	
Turkey		since 1995	
Kazakhstan		Observer 1996	since 2000
Kyrgyz Rep.		since 1998	since 2000
Russia		Observer 1993	since 2000
Tajikistan		Observer 2001	since 2000
Turkmenistan			
Ukraine		Observer 1993	Observer 2000
Uzbekistan		Observer 1994	Observer 2000

Source: Organizations' websites.

Table 1.3: Growth of real GDP, ECA countries, 1990 to 2004

(at constant 2000 prices, percent per year, trend-based)

	Agriculture		Industry		Services		Total GDP	
	1990-94	1995-04	1990-94	1995-04	1990-94	1995-04	1990-94	1995-04
CEE-8	na	1.7	na	3.4	na	3.9	-2.0	3.7
Bulgaria	-11.6	3.4	-6.6	1.8	-1.3	2.7	-4.0	2.5
Romania	-2.3	0.1	-4.6	1.3	-4.5	1.9	-4.2	1.5
Turkey	0.7	0.8	4.3	1.9	3.4	3.4	3.2	2.7
CEE-11	**na**	**1.0**	**na**	**2.8**	**na**	**3.6**	**-0.6**	**3.2**
CIS-7	-6.4	1.7	-16.8	3.0	-6.9	1.9	-10.8	2.2
Other	-10.2	1.7	-12.3	6.9	-4.9	5.0	-12.4	5.1
All ECA	**-3.9**	**1.3**	**-9.5**	**2.9**	**-2.3**	**2.9**	**-5.9**	**2.7**

Source: Sandri, Valenzuela and Anderson (2008), compiled from World Bank's *World Development Indicators.*

Table 1.4: Sectoral shares of GDP, ECA countries, 1992 to 2004

(percent)

	Agriculture				Industry				Services			
	1992	1996	2000	2004	1992	1996	2000	2004	1992	1996	2000	2004
CEE-8	7	5	3	3	39	32	30	29	55	63	66	68
Bulgaria	12	14	12	9	39	29	27	26	49	57	61	65
Romania	19	19	11	13	43	40	32	33	38	41	57	54
Turkey	14	16	13	11	27	25	22	19	59	59	65	71
CEE-11	**11**	**10**	**8**	**6**	**34**	**30**	**27**	**26**	**55**	**60**	**65**	**68**
CIS-7	11	8	8	6	43	35	33	31	46	57	59	63
Other	25	16	13	11	37	29	28	29	39	55	59	60
All ECA	**11**	**9**	**8**	**6**	**39**	**32**	**29**	**28**	**49**	**59**	**63**	**66**

Source: Sandri, Valenzuela and Anderson (2008), compiled from World Bank's *World Development Indicators.*

Table 1.5: Agriculture's shares of employment, ECA countries, 1992 to 2003

(percent)

	1992	1996	2000	2003
CEE-8	20	18	16	15
Bulgaria	12	9	7	6
Romania	22	18	15	13
Turkey	49	47	44	41
CEE-11	**30**	**28**	**26**	**24**
CIS-7	18	16	15	14
Other	25	22	20	18
All ECA	**23**	**21**	**19**	**18**

Source: Sandri, Valenzuela and Anderson (2008), compiled from FAOSTAT.

Table 1.6: Sectoral shares of merchandise exports, ECA countries, 1995 and 2004

(percent)

	Agriculture and processed food		Other primary		Other goods	
	1995	2004	1995	2004	1995	2004
CEE-8	14	8	10	7	76	85
Bulgaria	21[a]	13	16[a]	20	63[a]	67
Romania	10	6	11	11	79	83
Turkey	21	10	5	5	74	85
Russia	5[a]	4	53[a]	58	26[a]	21
Kazakhstan	13	5	49	79	38	16
Ukraine	20[a]	13[b]	11[a]	17[b]	69[a]	70[b]
Kyrgyz Rep.	35	31	24	26	41	43

[a] 1996
[b] 2000-02

Source: Sandri, Valenzuela and Anderson (2008), compiled from World Bank's *World Development Indicators.*

Table 1.7: Index of revealed comparative advantage in agriculture and processed food,[a] ECA countries, 1995 and 2004

(world = 1.0)

	RCA index	
	1995	2004
CEE-8	1.2	0.9
Bulgaria	1.9[b]	1.4
Romania	0.8	0.7
Turkey	1.8	1.2
Russia	0.4[b]	0.5
Kazakhstan	1.1	1.6
Ukraine	1.8[b]	1.6[c]
Kyrgyz Rep.	3.0	3.6

[a] Share of agriculture and processed food in national exports as a ratio of that sector's share of global exports
[b] 1996
[c] 2000-02

Source: Sandri, Valenzuela and Anderson (2008), compiled from World Bank's *World Development Indicators.*

Table 1.8: Exports of goods and services as a percentage of GDP, ECA countries, 1995 and 2004

(percent)

	1995	2004
CEE-8	36	59
Bulgaria	54	58
Romania	24	37
Turkey	22	29
Russia	19	35
Kazakhstan	28	54
Ukraine	25	60
Kyrgyz Rep.	22	42

Source: Sandri, Valenzuela and Anderson (2008), compiled from World Bank's *World Development Indicators.*

Table 1.9: Nominal rates of assistance to agriculture,[a] ECA countries, 1992 to 2005

(percent)

	1992-95	1996-99	2000-03	2004-05
Bulgaria	-19	-10	0	13
Czech Rep	20	19	27	na
Estonia	-14	20	20	na
Hungary	19	18	34	na
Latvia	-15	30	36	na
Lithuania	-19	29	32	na
Poland	10	24	7	na
Romania	24	30	55	67
Slovakia	28	26	30	na
Slovenia	64	79	80	na
CEEC-10	**12**	**22**	**24**	na
Turkey	15	25	22	30
Russia	-8	25	13	22
Ukraine	-21	-1	-11	-3
All ECA studied countries	**3**	**22**	**17**	**na**

[a] Weighted average, with weights based on gross value of agricultural production at undistorted prices

Source: From estimates reported in Chapters 2-5 of this book.

Table 1.10: Status of agricultural price and market reforms in ECA countries, 1997 to 2002

(1 = centrally planned economy; 10 = completed market reforms)

	1997	**1998**	**1999**	**2000**	**2001**	**2002**
Czech Rep	9	9	9	8	9	**9**
Slovenia	8	9	9	9	9	**9**
Estonia	10	9	9	9	9	**9**
Hungary	9	9	8	8	9	**9**
Latvia	7	8	9	9	9	**9**
Slovak Rep	7	7	7	8	8	**9**
Poland	9	8	7	8	8	**8**
Lithuania	7	8	8	8	7	**7**
Bulgaria	6	8	9	9	9	**8**
Albania	8	8	8	8	8	**8**
Romania	7	6	7	7	7	**8**
Croatia	6	6	6	7	7	**7**
Armenia	7	7	7	8	8	**8**
Macedonia	7	8	8	8	8	**8**
Azerbaijan	6	7	7	8	8	**8**
Kyrgyz Rep	6	7	7	7	7	**7**
Serbia and Montenegro	-	-	-	3	6	**7**
Moldova	7	8	7	7	7	**7**
Bosnia and Herzegovina	-	6	6	6	7	**7**
Georgia	7	7	8	8	9	**9**
Ukraine	7	6	6	6	7	**6**
Kazakhstan	7	5	6	6	6	**6**
Russia	7	6	6	6	6	**6**
Tajikistan	4	5	5	6	6	**6**
Uzbekistan	4	3	3	3	4	**5**
Turkmenistan	2	2	2	2	2	**2**
Belarus	3	2	2	2	2	**2**
ECA AVERAGE	**6.4**	**6.7**	**6.8**	**7.1**	**7.4**	**7.5**

Source: World Bank’s Policy Matrix Estimates.

Table 1.11: Trade bias index,[a] ECA countries, 1992 to 2005

(percent)

	1992-95	1996-99	2000-03	2004-05
Bulgaria	-2	-17	-18	-39
Czech Rep	5	-10	-23	na
Estonia	-21	-16	-1	na
Hungary	-14	12	-11	na
Latvia	-35	-18	15	na
Lithuania	-50	-32	-19	na
Poland	-19	-19	-24	na
Romania	-21	-29	-39	-18
Slovakia	3	-9	-5	na
Slovenia	26	40	38	na
CEE-10	**-15**	**-16**	**-22**	na
Turkey	-32	-46	-32	-29
Russia	-11	-31	-34	-24
Ukraine	-12	-25	-21	-45
All ECA studied countries	**-18**	**-30**	**-28**	**na**

[a]The trade bias index, TBI, 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 exportable parts of the agricultural sector.

Source: From estimates reported in Chapters 2-5 of this book.

Table 1.12: Standard deviation of nominal rates of assistance to agriculture, ECA countries, 1992 to 2005

(percent)

	1992	1996	2000	2005[2]
Bulgaria	13	15	12	43
Czech Rep	31	26	22	31
Estonia	34	23	18	27
Hungary	38	26	39	89
Latvia	44	28	43	44
Lithuania	64	36	59	60
Poland	39	27	35	27
Romania	42	43	47	89
Slovakia	29	21	22	29
Slovenia	55	40	27	46
CEE-10	**33**	**23**	**23**	**35**
Turkey	69	54	53	92
Russia	30	35	25	43
Ukraine	26	67	34	42

[a] 2003 in the case of EU-8 countries

Source: From estimates reported in Chapters 2-5 of this book.

Table 1.13: Relative rates of assistance to agriculture,[a] CEECs and other ECA countries, 1992 to 2005

(percent)

(a) CEECs

		1992-95	1996-99	2000-03	2004-05
Bulgaria	NRA Agric.	-19	-10	0	13
	NRA Non-Agric	na	na	7	9
	Rel. rate of assistance	na	na	-8	4
Czech Rep	NRA Agric.	22	21	29	na
	NRA Non-Agric	na	5	4	na
	Rel. rate of assistance	na	15	25	na
Estonia	NRA Agric.	-14	20	20	na
	NRA Non-Agric	na	0	1	na
	Rel. rate of assistance	na	19	19	na
Hungary	NRA Agric.	19	18	34	na
	NRA Non-Agric	9	5	6	na
	Rel. rate of assistance	9	12	26	na
Latvia	NRA Agric.	-15	30	36	na
	NRA Non-Agric	na	3	3	na
	Rel. rate of assistance	na	27	33	na
Lithuania	NRA Agric.	-19	29	32	na
	NRA Non-Agric	na	2	1	na
	Rel. rate of assistance	na	26	30	na
Poland	NRA Agric.	10	24	7	na
	NRA Non-Agric	9	6	3	na
	Rel. rate of assistance	1	17	4	na
Romania	NRA Agric.	24	30	55	65
	NRA Non-Agric	11	10	8	3
	Rel. rate of assistance	12	18	44	61
Slovakia	NRA Agric.	28	26	30	na
	NRA Non-Agric	na	na	21	na
	Rel. rate of assistance	na	na	9	na
Slovenia	NRA Agric.	64	79	80	na
	NRA Non-Agric	na	na	6	na
	Rel. rate of assistance	na	na	70	na
CEE-10	NRA Agric.	12	22	24	na
	NRA Non-Agric	na	na	5	na
	Rel. rate of assistance	na	na	19	na

Table 1.13 (continued): Relative rate of assistance to agriculture,[a] CEE-10 and other ECA countries, 1992 to 2005

(percent)

(b) Other ECA

		1992-95	1996-99	2000-03	2004-05
Turkey	NRA Agric.	15	25	22	30
	NRA Non-Agric	7	2	1	1
	Rel. rate of assistance	7	23	21	29
Russia	NRA Agric.	-8	25	13	22
	NRA Non-Agric	7	11	10	9
	Rel. rate of assistance	-14	12	3	12
Ukraine	NRA Agric.	-21	0	-11	-3
	NRA Non-Agric	2	3	3	3
	Rel. rate of assistance	-23	-3	-14	-6
All ECA studied countries	NRA Agric.	3	22	17	na
	NRA Non-Agric	na	na	5	na
	Rel. rate of assistance	na	na	11	na

[a] The Relative Rate of Assistance, RRA, is defined as:

$$RRA = 100[(1+NRAag^t/100)/(1+NRAnonag^t/100) - 1]$$

where $NRAag^t$ and $NRAnonag^t$ are the weighted average percentage NRAs for the tradable parts of the agricultural and non-agricultural sectors, respectively.

Source: From estimates reported in Chapters 2-5 of this book.

Table 1.14: Consumer tax equivalent for food products, ECA countries, 1992 to 2005

(percent)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Bulgaria	-34	-9	-26	-21	-35	-11	7	-2	5	-5	-9	13	12	5
Czech R.	15	26	17	0	1	1	27	17	7	17	22	22	na	na
Estonia	-37	-22	-8	2	6	4	25	5	5	6	11	13	na	na
Hungary	9	22	18	3	3	2	12	17	15	17	20	19	na	na
Latvia	-41	-16	9	0	3	11	37	38	28	32	32	16	na	na
Lithuania	-39	-16	-16	2	5	13	42	43	24	21	30	24	na	na
Poland	-7	9	13	6	15	12	26	20	6	4	0	-6	na	na
Romania	2	28	16	5	5	2	47	30	26	65	46	62	42	40
Slovakia	2	16	14	1	-6	2	21	16	7	4	11	13	na	na
Slovenia	48	50	48	49	37	45	72	75	46	39	43	47	na	na
Russia	-62	-38	-31	-6	5	18	7	-5	-1	8	11	8	13	8
Ukraine	-54	-10	-10	-33	-13	13	7	-7	1	3	-12	-7	-3	8
Turkey	37	29	9	9	12	28	36	28	27	1	21	35	26	27

Source: From estimates reported in Chapters 2-5 of this volume.

Table 1.15: Relative per capita income,[a] agricultural comparative advantage index,[b] and nominal and relative rates of assistance to agriculture, ECA countries, 2000-03

	Relative per capita income	Agric comparative advantage	NRA	RRA
Slovenia	216	52	80	70
Czech	135	61	29	25
Hungary	122	90	34	26
Estonia	102	199	20	19
Poland	93	105	7	4
Slovakia	92	57	30	9
Lithuania	80	176	32	30
Latvia	76	364	36	33
Turkey	55	131	22	21
Russia	47	53	13	3
Romania	41	74	55	44
Bulgaria	39	143	0	-8
Ukraine	17	112	-11	-14

[a] Income per capita relative to the world average, 2000-04

[b] Agriculture and food's share of national exports as a percentage of agriculture and food's share of global exports, 2000-04

Source: Columns 1 and 2: Appendix 1; columns 3 and 4: Chapters 2-5 of this book.

Table 1.16: Growth in cotton area and production, and seed cotton price, Central Asia, 1993 to 2003[a]

(growth rates, percent per year)

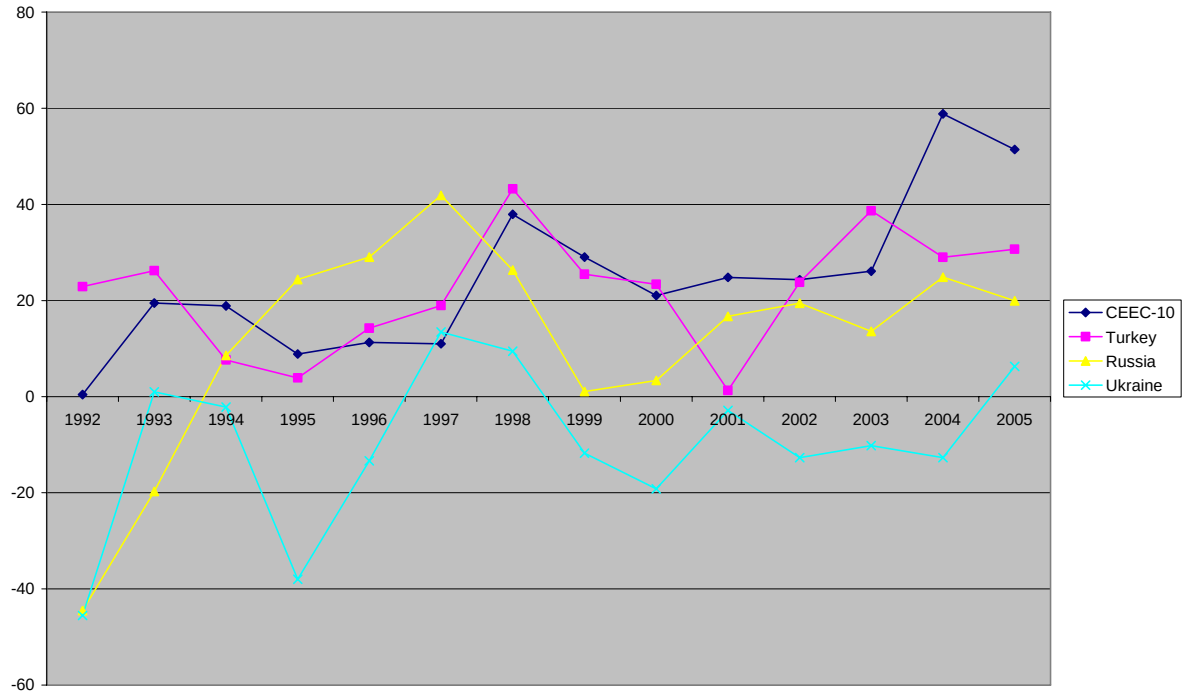
Annual growth rates	Kazakhstan	Kyrgyzstan	Uzbekistan	Tajikistan
Harvested area (ha)				
1993 – 1998	12.3	6.0	-1.7	3.7
1993 – 2003	5.8	7.6	-1.7	-0.1
Seed cotton production (1000 MTs)				
1993 – 1998	26.7	11	-2.3	8.4
1993 – 2003	8.9	11.5	-2.8	0.1
Baled cotton production (1000 MTs)				
1993 – 1998	12.6	20.4	-2.7	0.4
1993 – 2003	5.4	25.9	-2.6	-3.5
Seed cotton price ($ per MT), 2003	550	450	200	165

[a] There are significant differences in seed cotton production and baled cotton production. The most important reason for these differences is probably smuggling of seed cotton from Uzbekistan and Tajikistan to Kazakhstan and Kyrgyzstan, although there are no hard data to quantify the amounts of smuggled seed cotton.

Sources: Chapter 8 in this book, plus Sadler (2006) and World Bank (2006).

Figure 1.1: Nominal rates of assistance to agriculture, ECA countries, 1992 to 2005

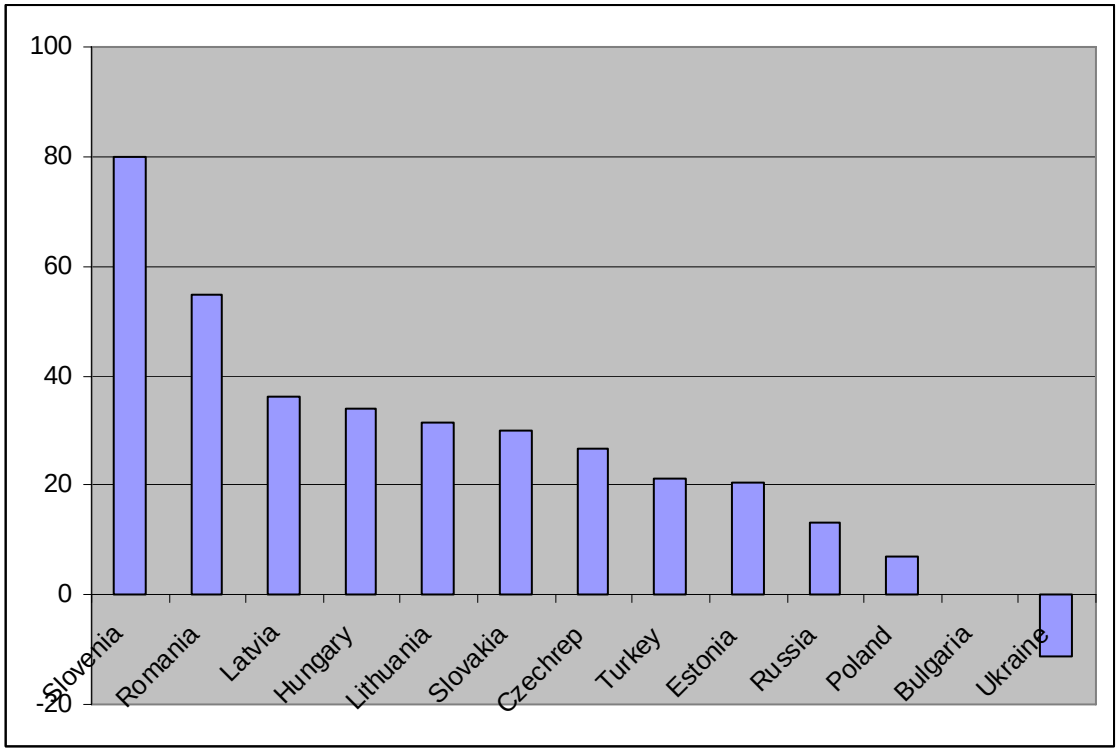
(percent)



Source: From estimates reported in Chapters 2-5 of this volume.

Figure 1.2: Nominal rates of assistance to agriculture, individual ECA countries, 2000-03

(percent)

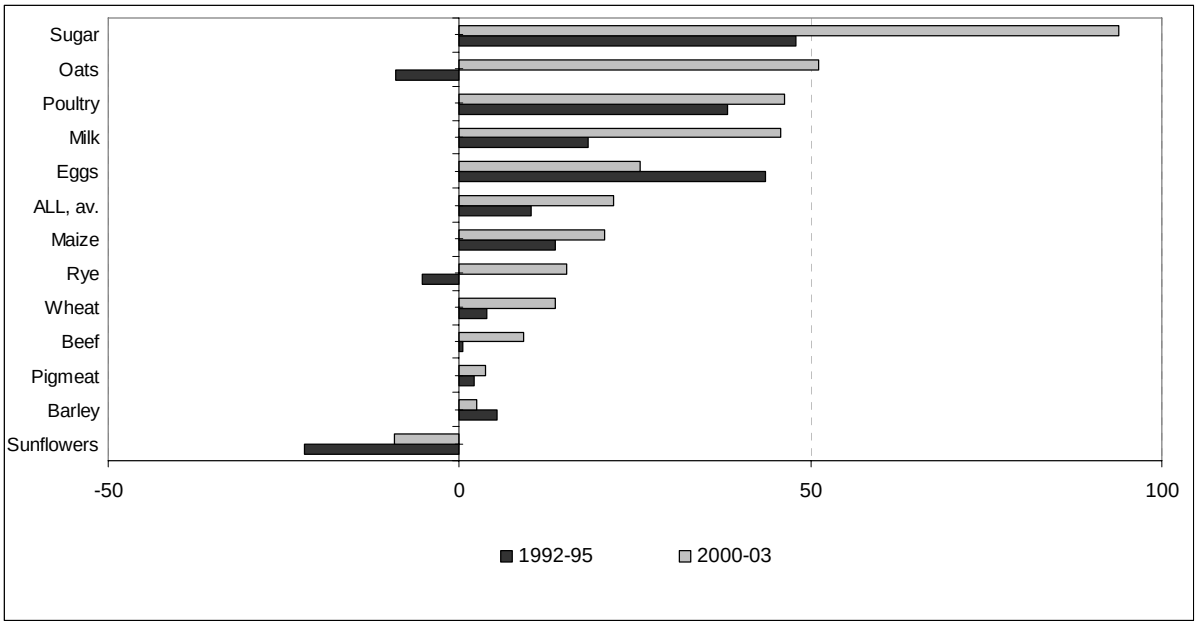


Source: From estimates reported in Chapters 2-5 of this book.

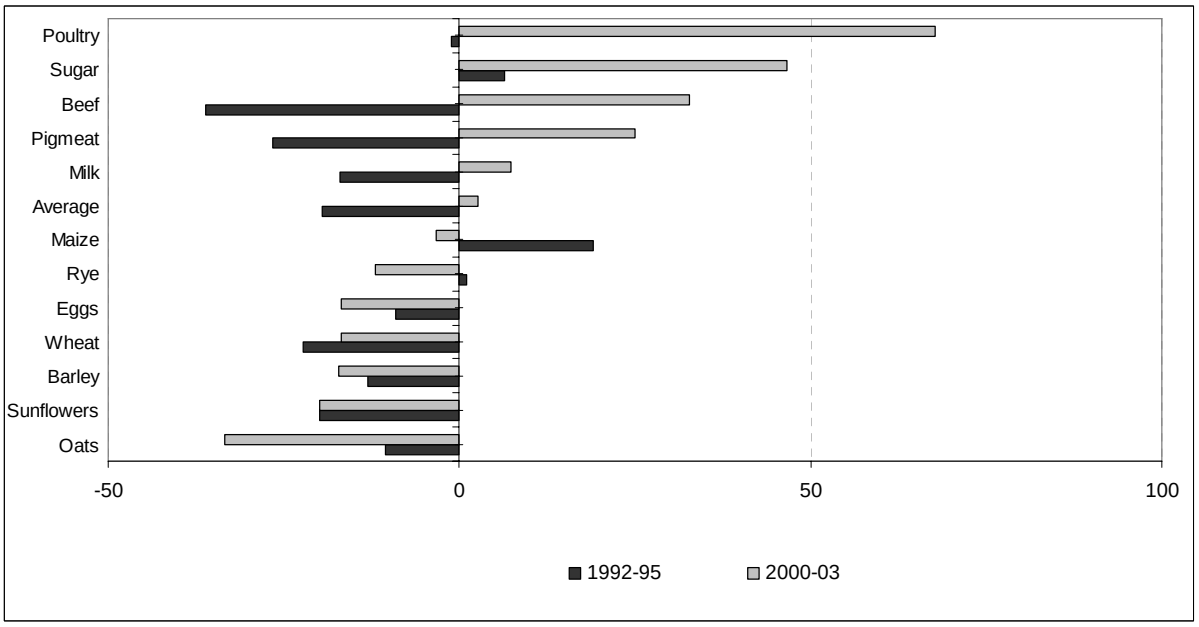
Figure 1.3: Nominal rates of assistance, by product, ECA countries, 1992-95 and 2000-03

(weighted average across countries,[a] percent)

(a) CEECs



(b) Russia and Ukraine

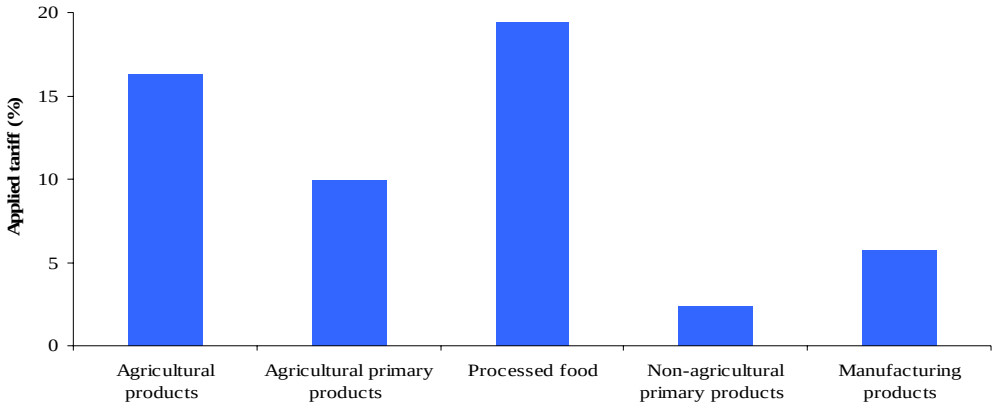


[a] Weights based on gross value of agricultural production at undistorted prices

Source: From estimates reported in Chapters 2-5 of this book.

Figure 1.4: Applied weighted average tariffs, CEE countries,[a] 2001-03

(percent)

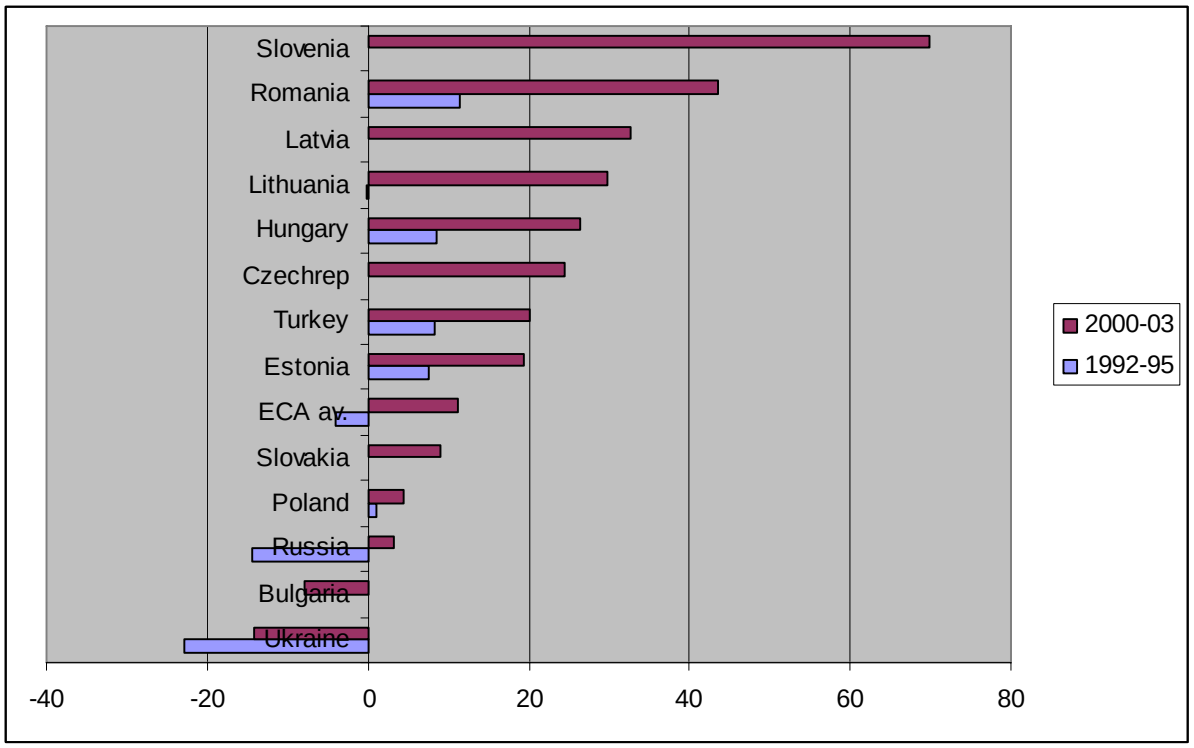


[a] Calculated as the simple average of each country's weighted average tariff for each sector, using unbalanced panel data.

Source: UNCTAD Trains data.

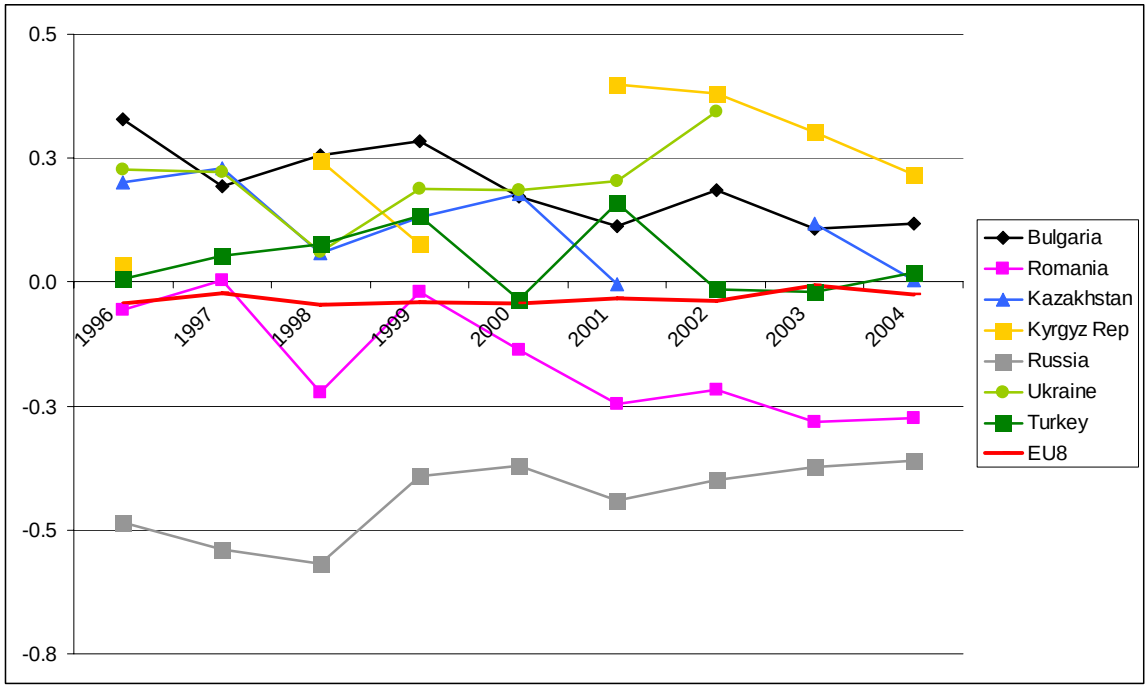
Figure 1.5: Relative rates of assistance to agriculture, ECA countries, 1992-95 and 2000-03

(percent)



Source: From estimates reported in Chapters 2 and 3 of this book.

Figure 1.6: Net exports as a ratio of the sum of exports and imports of agricultural and food products, ECA countries, 1996 to 2004



Source: Sandri, Valenzuela and Anderson (2008), compiled from World Bank's *World Development Indicators.*