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AGRICULTURE IN POST-TRANSITION CEECs: RECONSTRUCTION OR DECONSTRUCTION?

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Abstract

In the CEECs, the share of agriculture in GDP declined during the early years of transition to a level that characterizes countries with a higher level of economic development. This was accompanied by a significant and prolonged deterioration of key agricultural indicators. The crisis in the agricultural sector, which has lasted for almost two decades, reveals structural weaknesses that can hardly fall under the label of transformational recession. Accordingly, it has led to restructuring without the expected developmental content, and reflects strong elements of deconstruction, which at the end resembles a quasi-development process.

Keywords: Structural change, Chenery Hypothesis, transition economies, agriculture.

JEL classification: O13, P20, Q10

Introduction

In the CEECs, from the beginning of transition and in a short period of time, major changes took place in the structure of GDP and the composition of the economically active population. As a result of these changes, the structure of GDP tends, in some respects (e.g. participation of the agricultural sector), to be

similar to that attained by countries with a significantly higher level of economic development. However, this gives us a false picture of outcomes in the CEECs, given the lack of correlation between the actual levels of economic development and the level of economic development implied by the lower share of agriculture.

Structural deviation from the "average pattern"[1] is no novelty for the CEECs. The mismatch between the structure of the economy and the level of economic development was a feature of the CEECs even before transition (Winiecki, 1988, Döhrn and Heilemann, 1996, Raiser et al., 2004)[2]. This phenomenon is mainly attributed to policy choices that favored over-industrialization and the under-valuation of services for ideological reasons. The deviation of the post-transition structure from the "average pattern" is reflected in the very limited participation of the agricultural sector. In this paper, we support the view that the sharp decline in the share of agriculture in GDP to a level below the one expected following economic development in the CEECs, is neither a simple deviation from the average pattern, nor an outcome of country-level peculiarities, nor a transitory effect inherent in the so-called transformational recession.[3] It is a result of the specific conditions under which structural changes evolved in the early years of transition: changes took place in a very short period of time and under conditions of forced progress towards integration with the more developed countries of Western Europe. Both the causes of structural change and their impact on the economic structure of CEECs differ from the processes that took place not only in Western Europe, but also in the CEECs before transition.

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[1] The term "average pattern" designates the structural changes that take place as the level of economic development increases in most countries where universal factors prevail (e.g., similarities in production relations, domestic demand, opportunities for trade and international capital movements). It is used in contradiction to the concept of unique patterns displayed in countries where individual peculiarities emerge (e.g., abundant or scarce natural resources, open or closed economy, rapid or slow growth), and lead to deviation from international trends (for a more detailed description, see Syrquin and Chenery, 1989, Chenery and Taylor, 1968, Chenery and Syrquin, 1975).

[2] We must note that statistical data on the economic structure of the CEECs before transition was significantly different to data recorded in other countries, based on differences in the organization of production and the statistical method of collecting such information. To illustrate, we refer to differences between the MPS (Material Product System) and the SNA (System of National Accounts) that were applied in CEECs and Western Europe, respectively. Interestingly, Kuznets decided to exclude these countries from his research, due to their completely different institutional and political structures (Kuznets, 1966).

[3] Kornai (1994) uses the term transformational recession to explicitly refer to the sharp drop in production in the CEECs during the early years of transition of their economic system. At the same time, he distinguishes this phenomenon from the periodic economic crises of market economies.

Within this context, transition has led to structural changes that incorporate a narrowly-determined content of development, as well as strong elements of deconstruction of the economy and the agro-food system in particular. Reasonable adverse effects were observed during the initial period of transition, and were related to the concept of transformational recession (Kornai, 1994). After the first decade of transition, there were signs of recovery throughout the economy, but not in the agricultural sector. The developmental deficit of structural change, combined with expeditious action to full integration with the EU, created more serious and permanent economic/structural problems in the agro-food system of the CEECs. Such problems, including a prolonged decline in production, the worsening of the terms of trade, the sharp reduction of input use, and the fall in investment, led to a decline in the domestic production base not only in primary production, but also in associated sectors.

A number of studies have focused on structural changes during the post-transition phase in CEECs. Berend (1996) studies the long-term determinant undercurrent of structural changes in Central and Eastern European economies, and asks whether they can successfully adjust to the requirements set by the technological/structural transformation of the world economy. Döhrn and Heilemann (1996) examine the validity of the Chenery Hypothesis[4] in light of structural changes in Eastern Europe. Gros and Suhrcke (2000) investigate whether, after a decade of transition, the past legacy continues to influence and differentiate the structure of the CEECs compared to countries with similar per capita income. Landensmann (2000) studies changes in the structure of production, employment and the position of CEECs in the European division of labor. Mickievicz and Zalewska (2002) measure the structural deviation of CEECs from countries with similar levels of economic development. Gács (2003) analyzes the extent to which the inherited structure of the Central and East European candidate countries was transformed in recent years, as well as the implications of this shift for real convergence with the enlarged EU. Raiser et al. (2004) focus on the effect of transition on the structure of employment. Havlik (2004) explores structural changes and patterns of productivity catch-up at both the macro level and within individual industries.

Nevertheless, to our knowledge, prior research has not examined structural change in relation to factors, which determine its developmental content according to theory, and include shifts in the composition of demand and supply: differential productivity growth amongst industries, and resource transfers from agriculture to sectors with higher productivity, namely industry

[4] The Chenery Hypothesis refers to the uniformity of patterns of structural change in the economy as the income level rises (Chenery, 1968).

and services. On the whole, we argue that it is important to investigate the developmental content of structural changes, because it allows us, *inter alia*, to assess their impact on the economy and point to the fact that the typical notion of structural convergence can be a poor and misleading indicator, when it is not accompanied by an evaluation of alternative qualitative aspects of real convergence in development.

1. Structural change and development

The Chenery Hypothesis postulates that the level of economic development is associated with specific economic structures, i.e. each level of economic development corresponds to a certain structure of the economy (Chenery, 1960)[5]. Moreover, the idea put forth is that the transformation of the production structure is an integral part of the process of economic development (Syrquin, 1988). However, it is emphasized that the interrelationship between the level of economic development and the structure of the economy should be viewed as an *average* model (average pattern) and not as a *typical* model (unique pattern), because structural change also reflects country-level peculiarities. Country-level characteristics lead to deviation from international trends, and include, *inter alia*, natural resources, special events, foreign trade, country size, historical heritage, and economic policy (Chenery and Taylor, 1968, Syrquin, 1988). Notably, research on the sources of differentiation is no less important than research on the sources of uniformity (Kuznets, 1959).

Even though comparative studies of structural transformation are useful, they are considered to be of rather limited scope (Syrquin 1988, Syrquin and Chenery, 1989). Furthermore, it is argued that such studies constitute an evolutionary approach, based on a more descriptive rather than explanatory theory (Döhrn and Heilemann, 1996). Nevertheless, despite criticism, the Chenery Hypothesis is widely accepted and applied in studies of economic development and structural transformation. In this paper, we follow the Chenery Hypothesis in our treatment of the relationship between economic development and economic structure, without adhering to formalist views, mechanistic interpretations and uncritical treatments of aspects of structural change and their association to the level of economic development. We argue that the decline of the share of agriculture in GDP is neither an element of economic development *per se*, nor a reliable criterion of successful structural adjustment. Thus, it is unreasonable for economic development policies to

[5] Research on the relationship between the production structure and economic development traces back to work by Fisher (1939), Clark (1940) and Kuznets (1957).

pursue such a goal as an end in itself. This points to an additional reason, developed in the present paper, why the Chenery Hypothesis should be used with caution.

1.1 Do all types of structural change have a developmental content?

A crucial theoretical question is whether all types of structural change constitute development. In other words, we must distinguish between restructuring that possesses a developmental content and restructuring deprived of developmental content, which is related more to a process of deconstruction. The answer to this question lies in the restructuring mechanism, that is, in the *causes* and *effects* of the process.

The causes of structural change are connected with both demand and supply. Specifically, a decisive role is played by changes in the composition of intermediate and final demand, and by differential productivity growth amongst industries in the economy (Chenery and Watanabe, 1958, Maddison, 1987, Syrquin and Chenery, 1989). The impact of foreign trade and other external factors must also be taken into account.

With regard to the effects of structural change, emphasis should be given to the rise in total labor productivity and economic growth (Michaelides et al., 2004). The rise in total labor productivity constitutes the so-called reallocation effect, in which resources (labor, capital) are transferred to sectors with higher productivity, thus increasing the weight of these sectors in the structure of the economy (Robinson, 1971, Syrquin, 1986, Temple, 2001).

Consequently, structural change constitutes restructuring with a developmental content when it responds to the change in the composition of demand; when it adjusts to requirements posed by foreign trade and other external factors; when it materializes through the transfer of resources to more dynamic, more efficient industries; when it shifts the composition of output and ultimately translates into economic development. To the contrary, when changes in the production structure follow from factors other than those mentioned above, with no positive outcome, or even permanent adverse effects on the economy (e.g. prolonged growth slowdown, worsening of the trade balance, and weakening of vertical integration and relationships across industries), they are related to a process of restructuring without developmental content, i.e. a process of deconstruction. The adverse effects observed during the initial stages of structural changes usually appear in the literature as a rather transient phenomenon. Such a rationale lies behind Schumpeter's typical notion of

"creative destruction", and Kornai's view of transformational recession (Kornai, 1994). However, there are cases in which creation after destruction meets with delays or fails to appear, a phenomenon referred to as "destruction without creation" (Berend, 2000). Here we argue that the sharp reduction of agriculture observed in the CEECs under investigation can be considered a case in which delays in recovery have created more permanent weaknesses in the economy. The problem, of course, is not the delayed emergence of creation *per se*; it is the fact that it creates adverse conditions for the participation of these countries in the international division of labor, which in turn leads to more permanent damage and structural barriers to the development process.

2. Structural features of CEECs before and after the transition

From the mid-20th century, the CEECs are characterized by structural deviation from countries of the "West". However, the cause of such deviation and the manner in which it manifests itself differ between pre-and post-transition periods.

2.1 Pre-transition period

In the pre-transition period, structural deviation of the CEECs was due to the relatively large presence of the secondary sector (over-industrialization) and the relatively lower participation of services and agriculture, in comparison to capitalist countries with the same level of economic development (Winiecki, 1988, Döhrn and Heilemann, 1996, Raiser et al., 2004). The economic structure that was established during the pre-transition period is attributed to key features of the notion of economic development that prevailed in the CEECs and determined policy choices: emphasis was given to industrialization with an aim to achieve a high degree of self-sufficiency in basic manufactures, accompanied by the ideological under-valuation of the tertiary sector.

2.2 Post-transition period

The structural divergence of CEECs with respect to the level of development persists in the post-transition period. This lies mainly in the reduced participation of the primary sector, which tends to deviate further from the "average pattern", as well as in the increased participation of industry, despite its tendency to converge towards the "average pattern" (see Raiser et al., 2004). With regard to non-market services, they have maintained their presence in the economy, even though market services have significantly increased (Gács, 2003).

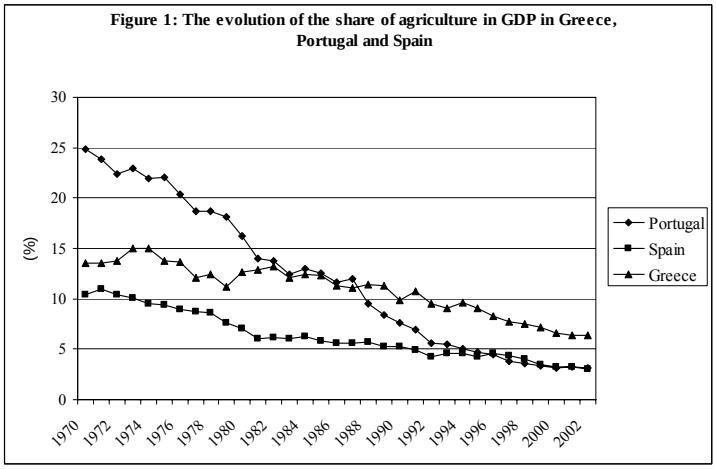
2.2.1 Interpretation of structural divergence in the post-transition period

Post-transition restructuring, which is related to the sharp reduction of agriculture in GDP, differs from both the restructuring process in Western Europe, and in the CEECs during the pre-transition period (Nikolaidis and Kirkilis, 2004). In the following, we discuss the peculiarities of structural change in the CEECs that are associated with: the short period of time within which change was brought about in the agricultural sector; the different international and national environment; and the different causes and effects of structural change.

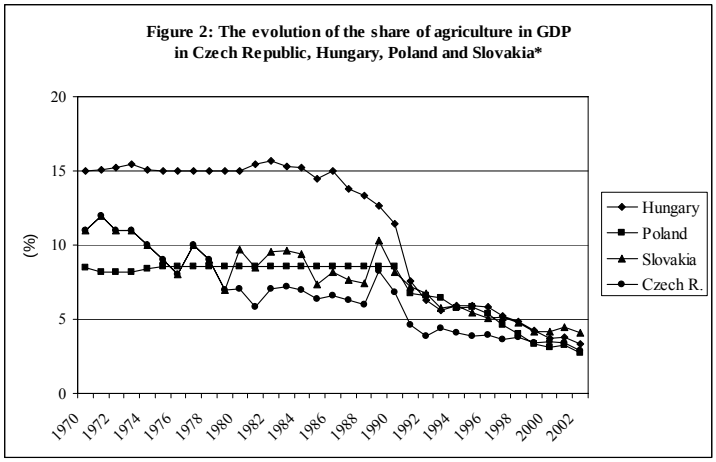
a. The short period of time

The period of time within which structural changes take place is important, because it determines the relationship between forces of "destruction" and "creation". In light of trends of growing internationalization, profound structural changes that are brought about in a very short period of time can further weaken a country's efforts for economic adjustment and favor a scenario of destruction without creation (Kornai, 2006). The large time lag between phases of "destruction" and "creation" leads to deficits in consumption and domestic production activities, which are covered by imports from abroad. This "time lag", therefore, restricts the developmental content of structural change, which attains features of deconstruction.

In the CEECs under study, major changes contributing to the sharp reduction of the share of agriculture in GDP occurred in a period of time that barely covers a full decade. In Western European countries, large-scale changes in the structure of their economies evolved through a much longer period of time. This applies to countries with a higher level of economic development, as well as those with development that is relatively closer to that achieved in the CEECs (namely, Greece, Portugal, Spain) (Figure 1 and 2).



Source: UNECE (Own calculations)



Source: UNECE (Own calculations)
(*) 1970-1979 Czechoslovakia (former)

Of course, over time, structural change is accelerated by improvements in technology, and takes place at a much shorter period of time, compared to past developments in countries with old technology (Feinstein, 1999, Raiser et al., 2004). Nevertheless, we cannot support the view that rapid restructuring in the CEECs was a result of improved technology, due to their relatively lower level of technology and insufficient investment.

b. The different context of international and national environments

The different international environment within which structural change took place constitutes a critical parameter for the comparative assessment of structural changes in the CEECs during the post-transition period, compared to relevant changes in EU countries, as well as changes in the pre-transition period in the CEECs. Such factors are widely covered in the literature on transition (see, for instance, Ellman, 1997). With regard to the international environment and its impact on structural change, there are three factors worth noting: international groupings of economic integration; conditions for the conduct of international trade; and possibilities of migration and exploitation of foreign exchange imports.

First, the weight of agriculture in the EU countries fell on account of increased protection of the domestic market from international competition and strong promotion of exports. The case was similar in the CEECs before transition. In contrast, the agricultural sector in the post-transition period encountered conditions featuring a sharp reduction in protectionism, market liberalization and an increasingly aggressive role undertaken by multinational companies in the agro-food system. In light of this new international context and in the midst of radical institutional and economic changes, the agricultural sector in the CEECs has been exposed to intense pressures from the international space even in the domestic market.

Second, while agriculture was undergoing change in the CEECs, Western European countries were engaging in a process of deeper integration and enlargement within the EEC/EU, where the Common Agricultural Policy constituted one of the major common policies. Similar developments were observed within the CMEA (Council of Mutual Economic Assistance). To the contrary, during the post-transition period, the CEECs experienced the collapse of the forms of international integration in which they were a part, while being forced to prepare for accession to the more developed EU. Under these circumstances, the abrupt reorientation and liberalization of foreign trade had adverse effects on the domestic production process.

Finally, the CEECs, with the exception of Poland, were also deprived of the benefits of the "indirect" reallocation effect, produced from the migration of the rural population abroad and the import of foreign exchange to the domestic economy, as was the case in the less developed Mediterranean countries of the EU. During the 90s, developed EU countries were unable to absorb the massive

inflows of labor from Eastern Europe, on account of pressures exerted by both rising unemployment and increased migration flows from developing countries.

With regard to the impact of country-level factors, to the extent that they can be examined independent of changes in the international environment, we also identify certain differences in the conditions under which the participation of agriculture fell in the CEECs. In EU countries, a decline in the participation of the agricultural sector followed the dynamic development of secondary and tertiary sectors. In the pre-transition period of CEECs, structural changes between economic sectors were largely controlled by central planning. In both cases, however, the labor force released by the agricultural sector had opportunities for more productive use. Instead, during the post-transition period in the CEECs, the participation of agriculture fell in light of rising unemployment and economic recession or stagnation. There were thus limited opportunities to exploit the benefits produced from the reallocation of resources.

Furthermore, in the EU, the share of the agricultural sector decreased at a time when it enjoyed strong income support. Similarly, in the pre-transition period of the CEECs, agricultural prices and their relation to industrial inputs were largely stable or changed in a controlled manner. However, in the post-transition period, the relative importance of agriculture in CEECs declined on account of the sharp reduction of support for domestic production.

Therefore, differences in the international environment, coupled with country-level developments (disintegration of traditional international economic ties, limited support of production, which is becoming less vertically-organized, and institutional disorganization) accelerated the process of destruction for previous structures of agricultural production and the agro-food system in general, on the one hand, and prevented the emergence of elements of creation capable of leading to recovery, on the other.

c. Causes and effects of structural changes

A crucial question that arises from our previous analysis involves the extent to which the causes and effects of structural changes have been affected by differences in international and national conditions, as well as by the short period of time in which these changes took place during post-transition in CEECs.

Differences in the causes of structural changes

As mentioned above, according to relevant theories, the main determinants of structural change include the shift in demand, the differential improvement in productivity amongst industries, and the impact of foreign trade or other external factors. The question is whether structural changes in the CEECs can be attributed to these factors.

In the case of CEECs, the sharp reduction of the weight of agriculture in the economy during the early years of transition, in terms of employment and, particularly, of value added, does not appear to be a result of shifts in demand from agricultural to industrial products and the service market.

Under standard conditions of economic growth, the increase in per capita income would lead to the relative decline in the demand for food in favor of products and services from the secondary and tertiary sectors (Engel's law). Moreover, the volume of food consumption increases, despite the relative decline between sectors. However, in CEECs, we observe a reduction in the income and purchasing power of households, which led to a reduction in total consumption, including food. It was thus impossible for lower levels of income and purchasing power to stimulate major structural changes invoked from demand-side factors. Of course, it should be noted that there was a shift to consumption goods and services not previously available, due to the higher purchasing power of certain segments of the population. However, their demand was mainly covered by imports and thus could not affect the orientation of the domestic production base, at least in the early years of transition.

Another major source of restructuring is the transfer of labor to sectors with higher productivity. In the CEECs, there were indeed differential improvements in productivity amongst industries. Nevertheless, these were achieved in

conditions of declining levels and rates of total employment, and therefore they could not absorb labor resources from the agricultural sector.

The actual causes of the extensive and rapid decline in the share of agriculture in GDP are associated with the reasons that led to the broad and prolonged reduction of agricultural production in absolute terms. There was a large decline in agricultural production in the first years of transition, which stabilized at a level lower than that achieved in 1989. This was due to a number of factors, of which the most important are: the liberalization of prices and trade; the deterioration of the terms of trade; a reduction in the use of inputs; the collapse of institutions; the decomposition of vertically-organized food chains; and institutional disorganization (Döhrn and Heilemann, 1996, Macours and Swinnen, 2000, Csaki et al., 2006).

On the whole, restructuring in the post-transition period, which led to the sharp decline of agriculture, was not a result of the two basic causes mentioned in the literature, namely changes in demand and improvements in technology.

Differences in the effects of structural changes

As discussed above, the main impact of restructuring involves the transfer of resources to sectors with higher productivity and the increase of the weight of these sectors in the structure of the economy. This, in turn, leads to an increase in the total productivity of labor, and, ultimately, an increase in economic growth.

In the CEECs under investigation, productivity growth in industrial and service sectors is mainly attributed to the decline in the level of employment, which offsets the fall in output. Furthermore, it was due to changes that occurred within these sectors, and much less to transfers of labor from low productivity sectors such as the agricultural sector (Havlik, 2004). There is evidence that, despite the wide range of structural changes, the impact they had on productivity growth was relatively limited. A large part of the increase in productivity (over 88%) was due to changes within industries (within individual economic sectors), whereas a much smaller portion was a result of transfers of labor towards sectors with higher productivity (Havlik, 2004, Huber and Mayerhofer, 2006, United Nations, 2006).

3. Deconstruction in the agro-food system

From the early years of transition, we observe rapid structural change and, in particular, a sharp decline in the share of agriculture in GDP to a level similar to that of more developed EU countries. Initially, changes were accompanied by unfavorable developments in a series of indicators that refer to the economy as a whole and the agricultural sector in particular. Towards the end of the first decade of transition, several basic economic indicators (e.g. GDP, GDP per capita) offered signs of recovery and began to exceed the level attained in 1989, while other indicators deteriorated (e.g. balance of trade). However, this refers to the economy in general and not specifically to the agricultural sector, where the crisis persisted (Liefert and Swinnen, 2002, Brooks and Nash, 2002). We can identify the prolonged crisis from the deterioration of a series of basic agricultural indicators, such as per capita food consumption, volume of production, terms of trade, the trade balance, the use of inputs, investment, relations with other industries. In the following, we discuss the deterioration of these indicators.

Food consumption suffered a sharp decline, which persisted for fifteen years after the transition period began. One explanation is associated to the decline in income, but is also partly due to the prolonged crisis in the agro-food system. The level of food consumption fell in both quantitative and qualitative terms. Quantitative aspects of food consumption refer to the calories of food consumed per person on a daily basis, whereas qualitative aspects involve the share of calories of products consumed that is of animal origin, the total quantity of protein consumed daily per person, and the share of protein intake from products of animal origin (Table 1). These indicators provide evidence of the deterioration in the quantity and quality of food consumption, which in 2001-03, given cross-country variations, drops to a level equivalent to that achieved in the 80s, or even the 70s.

Table 1: Changes in food consumption in the CEECs

	Grand Total		Animal Products		Animal Products	
	1987-1989	2001-2003	1987-1989	2001-2003	1987-1989	2001-2003
	Food consumption (Kcal/capita/day)				(%)	
Czechoslovakia	3,564	-	1,179	-	33.1	-
Czech Republic	-	3,243	-	820	-	25.3
Slovakia	-	2,825	-	720	-	25.5
Hungary	3,732	3,503	1,406	1,127	37.7	32.2
Poland	3,484	3,366	1,132	879	32.5	26.1
	Protein consumption quantity (g/capita/day)				(%)	
Czechoslovakia	106	-	60	-	57.1	-
Czech Republic	-	93	-	53	-	56.8
Slovakia	-	77	-	38	-	50.0
Hungary	106	95	59	51	55.8	54.2
Poland	104	99	57	50	54.6	50.3

Source: FAO (own calculations)

After a large drop in the first years of transition (1990-1995), *agricultural production* continued to decline, albeit at a slower pace. As a result, the level of production in 2005-7 was lower than the level attained in the period 1987-1989 by 34% in the Czech and Slovak Republic[1], 17.5% in Hungary and 21.7% in Poland. A common feature in all these countries, with the exception of Poland, is that livestock production, whose replenishment requires time and capital, has significantly reduced by an amount larger to that of crop production (Table 2).

After transition, the *terms of trade* in agriculture are constantly worsening, as the rate of price increases in agricultural products is systematically below the relevant price index for farm inputs (Table 3). Consequently, consumable inputs and fixed capital formation fell significantly and remained low, leading to a decline in investment returns and in the rate of replacement of equipment (Csaki et al., 2006). The negative impact of the slowdown in investment activity within the agricultural sector were further amplified by the fact that it took place during a period, which called for the strong mobilization of funds for maintenance and modernization of existing capital stocks, as well as for new investments directed to the adjustment of production to the needs of small-scale holdings. It is argued that the deterioration of the terms of trade is responsible for 45% of the reduction in agricultural production during the period 1990-1995 (Macours and Swinnen, 2000).

Conditions in the *trade balance* for food and agricultural inputs are more complex. In the Czech Republic and Slovakia, the deficit in the trade balance for agricultural products rose by 38.1% in the period 2001-6. Also, despite the significant fall in production, the deficit in the trade balance for agricultural inputs nearly quadrupled, and is equivalent to 16.2% of the deficit for agricultural products from a level of 4.7% in 1987-9. In Hungary, even though the surplus produced in the pre-transition period (1987-9) was sustained and increased by 7.6% in 2001-6, the deficit for agricultural inputs increased sixfold and now represents 15.9% of the surplus for agricultural products from 2.7% in 1987-9.

[1] This is the pooled outcome for the two countries in order to compare with figures calculated in previous periods for the integrated Czechoslovakia. In the following, figures for the Czech Republic and Slovakia will be presented jointly for the two countries, unless otherwise specified.

Table 2: Indices of agricultural production, (PIN)*

	1987-89	1990-95**	1996-2000	2001-05	2005-07	2005–7/1987-9 (%)***
	Agriculture					
Czechoslovakia	7,454,992	6,955,273	-	-	-	-
Czech Republic	-	-	3,901,360	3,731,923	3,563,953	91.4
Slovakia	-	-	1,627,560	1,506,889	1,335,279	82.0
Hungary	7,373,161	5,767,606	5,384,899	5,535,567	5,347,543	72.5
Poland	20,179,067	18,057,940	17,134,088	16,361,050	15,795,247	78.3
	Crops					
Czechoslovakia	3,188,611	3,025,928	-	-	-	-
Czech Republic	-	-	1,861,840	1,817,174	1,781,816	95.7
Slovakia	-	-	839,095	803,082	758,275	90.4
Hungary	4,268,757	3,391,250	3,314,490	3,478,336	3,527,564	82.6
Poland	11,592,280	10,533,437	9,961,817	9,081,160	8,356,232	72.1

	Livestock					
Czechoslovakia	4,266,381	3,929,345	-	-	-	-
Czech Republic	-	-	2,039,520	1,914,749	1,782,137	87.4
Slovakia	-	-	788,464	703,806	577,003	73.2
Hungary	3,104,404	2,376,357	2,070,410	2,057,232	1,819,979	58.6
Poland	8,586,789	7,524,504	7,172,270	7,279,890	7,439,015	86.6

Source: FAO (own calculations)
(*) The FAO indices of agricultural production show the relative level of the aggregate volume of agricultural production for each year in comparison with the base period 1999-2001. They are based on the sum of price-weighted quantities of different agricultural commodities produced after deductions of quantities used as seed and feed weighted in a similar manner. All the indices are calculated by the Laspeyres formula. Production quantities of each commodity are weighted by 1999-2001 average international commodity prices and summed for each year. To obtain the index, the aggregate for a given year is divided by the average aggregate for the base period 1999-2001.
(**) Czechoslovakia 1990-93
(***) Czech Republic and Slovakia 1996-200=100

Table 3: Indices of input and output prices in agriculture, (1990 = 100%)

		1995	**2000**	**2002**	**2004**
Czech Republic	Input price	183.8	227.3	339.3	358.9
	Output price	128.2	141.0	139.1	140.5
Slovakia	Input price	257.4	367.9	-	422.0
	Output price	145.8	170.4	-	176.9
Hungary	Input price	250.9	491.6	480.9	503.9
	Output price	206.4	389.4	353.2	317.0
Poland	Input price	512.4	923.0	1,010.1	1,116.8
	Output price	478.4	682.8	645.9	762.0

Source: Vavrejonova and Lüpsik (2007)

In Poland, the deficit in the trade balance for agricultural products turned into a surplus, which is coupled with a large deficit in the balance for agricultural inputs, equivalent to 48% of the surplus for agricultural products (Table 4). To have a more complete view of conditions in the trade balance for food, we must mention that these developments took place during a period characterized by reduced domestic food consumption. By taking the joint effect of the low levels of food consumption and the adverse developments in the trade balance for agricultural inputs, this weakens any positive developments in the trade balance for food (Hungary, Poland), or intensifies the negative (Czech Republic and Slovakia).

Finally, the *weakening of domestic inter-industry relations* after transition in the economies of the CEECs under study has been widely discussed in the literature (Roberts et al., 1998, Przybylinski, 2003, Gács, 2003). According to input-output data, the increase in imports of agricultural and food industry sectors, expressed as a proportion of total intermediate inputs, reveals the weakening of domestic inter-industry relations in the agro-food system (Table 5).

Furthermore, it becomes evident that, with few exceptions, these figures particularly concern the chemical industry, as well as the industry for the production of machinery and equipment for agriculture. Also, with few exceptions, there was a fall in inputs produced domestically by the agricultural sector and the food industry, expressed as a proportion of inputs utilized by the food industry. This decomposition of inter-industry relations has worse repercussions if we take into account that developments occurred within conditions of a sharp reduction in domestic agricultural production.

Table 4: The balance of trade for agricultural products and inputs of agricultural production, (1,000 $)

		1987-1989	**1990-95***	**1996-2000**	**2001-2006**
Czechoslovakia	Agric. Products	-1,252,942	-	-	-
	Agric. Requisites	-58,655	-	-	-
Czech Republic	Agric. Products	-	-324,182	-757,403	-1,123,100
	Agric. Requisites	-	-58,919	-86,079	-181,830
Slovakia	Agric. Products	-	-204,707	-411,647	-607,764
	Agric.Requisites	-	-9,046	-23,906	-40,942
Hungary	Agric. Products	1,253,548	1,629,149	1,469,166	1,348,887
	Agric. Requisites	-33,923	-27,948	-177,398	-214,183
Poland	Agric. Products	-280,262	-159,298	-897,206	865,006
	Agric. Requisites	-322,879	-75,882	-267,628	-416,282

Source: FAO (own calculations)
(*) Czech Republic and Slovakia 1993-95

Table 5: The share of imports in total intermediate inputs, in agriculture and in the food and drink industry, (%)

	Products of agriculture, hunting and related services			**Food products and beverages**		
	1995	**2000***	**2005**	**1995**	**2000***	**2005**
Czech Rep.	-	29.1	46.9	-	25.0	31.8
Slovakia	22.1	21.2	-	23.1	41.4	-
Hungary	-	10.2	16.6	-	14.6	25.6
Poland	-	13.3	14.4	-	9.5	11.9

Source: FAO (own calculations)
(*) Hungary 1998

Conclusions

Almost two decades after the transition process began in the CEECs examined here, the agricultural sector has not recovered, as opposed to improvements observed in several main economic indicators. To the contrary, agriculture has been experiencing prolonged crisis characterized by reduced production, deteriorating terms of trade, limited use of consumable inputs, and the slowdown in investment activity. In addition, there is a weakening of domestic inter-industry relations in the agro-food system. The positive developments occurring in the trade balances of the agricultural sector in two of the four countries (Hungary, Poland) are accompanied by the large decline in the quantity and quality of food consumption, as well as the significant deterioration of the trade deficit in agricultural inputs. Therefore, we can conclude that adverse developments in agriculture are not attributed solely to the reasonable problems that are associated with the process of transition and fall under the label of transformational recession. The duration and nature of the crisis in agriculture reveals changes that lead to the emergence of more permanent structural weaknesses.

The sharp decline in the share of the agricultural sector during the post-transition period differs not only from developments that took place in most countries of the EU, but also from those that characterized CEECs in the pre-transition period. Differences lie mainly in the very short time within which these changes occurred, in the different international and national environment, and the different causes and effects of restructuring.

After transition, the relative importance of agriculture in the CEECs fell sharply under the strong influence of domestic and external forces. These peculiarities reduced the developmental content of structural change. Accordingly, the reduction of the primary sector does not constitute a restructuring process with developmental content, but a deconstruction of the primary sector and its linkages to related industries. Thus, the reduction of the weight of agriculture is indicative of quasi development that took place in the CEECs after transition. The state of agriculture in the post-transition phase confirms the view that it was the sector with the greatest losses after transition. Moreover, this meant that neither the rest of the economy gained any development benefits from the restructuring process, counter to expectations based on historical experience.

The structural divergence of CEECs in the post-transition period is not simply an exception to the “average pattern”, or a reflection of national peculiarities. It follows from abrupt, compelling changes in the transition to a market economy,

the rapid opening up of domestic markets to the international economy, and the acceleration of accession to and integration with the EU. This confirms that the application of the average pattern is merely a relative criterion for the international comparison of economic structures. We therefore conclude that a reduction in structural deviation cannot be achieved by pursuing it as an end in itself, and ignoring the developmental content of structural change. In this sense, the decline in the agricultural sector and the convergence of economic structures between the CEECs and EU countries cannot constitute an irrefutable criterion to evaluate the success of the transition process.

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