

Globalisation, Agricultural Development and Rural Welfare in Transition

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ABSTRACT

This paper analyzes the impact of globalisation on agriculture, development and rural welfare in transition countries. First, we present an overview of insights on how globalisation has affected agriculture and rural households' welfare in transition countries based on existing studies. Secondly, the paper presents new empirical evidence on how specific aspects of 'globalisation', in particular the inflow of foreign investment and the integration in international commodity markets, have affected Polish agriculture, and more specifically small-scale dairy farms. Given the characteristics of this sector (many poor small farmers, low quality output, direct need for investment and restructuring, ...) this study yields useful insights which have wider implications.

* The ideas expressed in this paper benefited from many discussions and research collaboration over the past years with, especially, Hamish Gow, Karen Macours, and Scott Rozelle. Studies and research results where this paper relies on can be found at the website on the Research Group on Food Policy, Transition, and Development (www.prgleuven.be). The opinions presented in this paper are only those of the authors, and do not necessarily reflect those of the institutions they are associated with.

I. INTRODUCTION

There is growing concern about the negative impacts of globalisation on sustainable development, poverty, and welfare in poor countries and of the weaker groups in society. Yet others point out that the forces behind globalisation are powerful factors that could importantly contribute to stimulating growth in developing countries, to poverty reduction and to sustainable development. The objective of this paper is to contribute to this debate by studying the impact of globalisation on agriculture and rural areas in transition countries. The paper wants to contribute in two ways. First, the paper presents an overview of insights on the impact of globalisation in transition countries based on existing studies.

Secondly, the paper presents new empirical evidence on how specific aspects of ‘globalisation’, in particular the inflow of foreign capital and the integration in international commodity markets, have affected Polish agriculture, and more specifically the small-scale dairy sector. Given the characteristics of this sector (many poor small farmers, low quality output, in direct need of investment and restructuring, etc.) the case study yields insights which have wider implications.

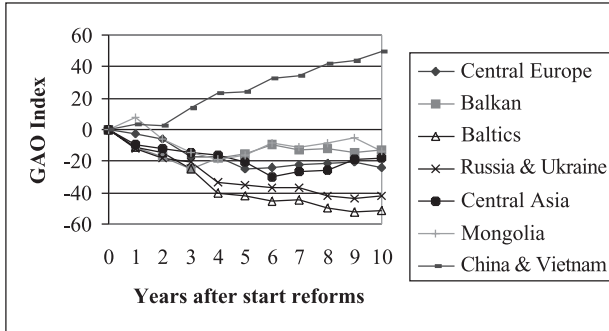
II. GENERAL INSIGHTS

Economic and institutional reforms in the Communist world started more than 20 years ago in China and a few years later in Vietnam. In 1989 the Berlin Wall fell, the beginning of a vast set of changes throughout the countries of the former Soviet Bloc. The transition process in these countries is an interesting subject of research as changes can be evaluated and compared with one offset point.

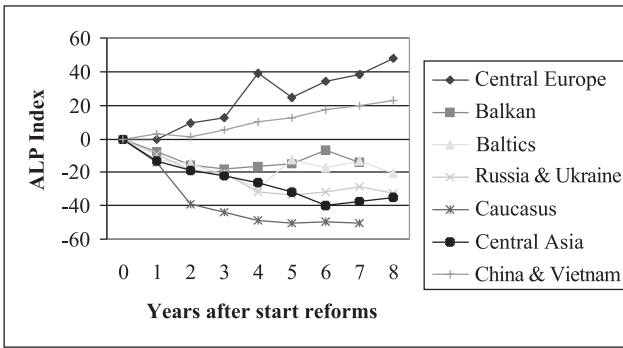
The most striking observation when looking at these countries in transition is how diverse their experience has been so far (see Figure 1). In China, the reforms began in agriculture. Production and productivity soared after the reforms and the growth of the sector contributed importantly to rural poverty reduction. Other countries which followed this “Chinese pattern” are Vietnam, and in Europe, also Albania. During the first transition decade output increased by more than 50% in China and Vietnam, while labor productivity increased by 25% and yields by 40%. Growth continued during the years afterwards.

FIGURE 1
Agricultural Performance During Transition

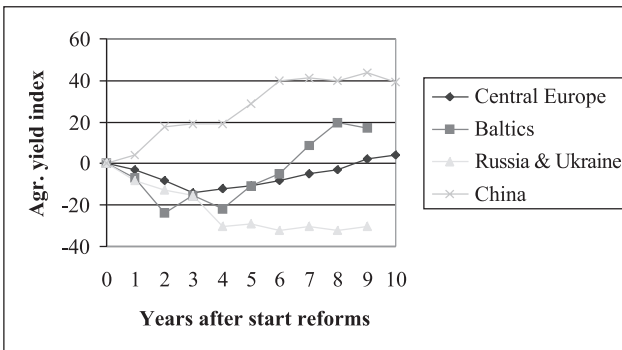
1a. Changes in Gross Agricultural Output (GAO)



1b. Changes in Agricultural Labour Productivity (ALP)



1c. Changes in yields (average agriculture)



Source: Own calculations based on FAO, USDA, ILO, and national statistics.

In contrast, agricultural output in Russia and East Europe collapsed in the immediate wake of the reforms, raising rural poverty. However, in several Central and Eastern European Countries (CEECs), the decline in output coincided with a strong increase in labor productivity because of a strong outflow of labor from agriculture. This is the pattern followed by, for example, the Czech Republic, Slovakia and Hungary. Output declines by around 30% during the first years of transition, but stabilizes after 4 years. At the same time, agricultural labor productivity increases rapidly: on average around 10% annually during the first transition decade. After three years, yields also start increasing, by 3% annually on average.

Agricultural production and productivity continued to decline in Russia, Ukraine and some other countries of the former Soviet Union (FSU) for almost a decade. On average, output fell by almost 50% in these countries and both yields and labor productivity fell by around 30%. Remarkably, the financial crisis of 1998 seems to have been the turning point in the economic fate of Russia, and some of its neighbors. Since 1999, growth has resumed.

These different experiences were the result of a complex set of factors and their interactions (Macours and Swinnen (2002)). In fact, one of the problems studying the impact of globalisation on agriculture and rural development in transition countries is separating the impact of globalisation forces from the impact of more domestically oriented institutional and economic reforms – and their interaction. Few studies have tried to quantify these effects in transition countries and the discussion in this section will therefore be mostly qualitative, identifying some key developments and factors in the globalisation-transition process. We refer elsewhere for more detailed analyses (e.g. Gow and Swinnen (2001); Macours and Swinnen (2002); Swinnen and Beerlandt (2002)).

A. Global integration was only one of several key reforms that affected agricultural development and rural welfare in transition countries

The reforms included a package of significant changes in property rights, price regimes, in institutions coordinating economic exchanges, trade and capital market policies etc. Some of these policy reforms had an important impact on the countries' link with the outside world, and hence, on how they were affected by the process of globalisation.

However, several of these reforms were important irrespective of global developments. Hence, much of the developments in agricultural output, productivity, rural incomes and livelihoods were substantially affected by other factors than globalisation over the past decade(s). Moreover, initial conditions importantly affected the way in which liberalization and other economic reforms have influenced agricultural performance, as well as rural poverty. We will briefly illustrate this with some of the key reforms.

First, pre-reform *price and subsidy policies* diverged among the socialist economies and as a result, price liberalization had vastly different effects. In China and Vietnam, as in many developing countries, agriculture was taxed through price and trade regulations. In China, leaders increased the administered prices that farmers received for their output in the late 1970s and early 1980s. Similarly in Vietnam, price liberalization caused an increase in farm prices. Yet, in CEECs and FSU, liberalization implied price and subsidy cuts, because of the heavy consumer and producer subsidization under communism, thus causing a crisis in the agricultural sector.

Second, reforms in China started with re-allocating *land rights* from the communes, brigades and teams to rural households. With very labor-intensive production systems (the man/land ratio in China and Vietnam was higher than one, compared to less than 0.15 in Central Europe and Russia), this caused a complete break-up of collective farms into small-scale household farms. The resulting changes in incentives caused a dramatic increase in productivity and output. In contrast, large-scale former collective and state farms still cultivate much land in Russia and CEECs. The difference between Russia and CEECs is not so much in the scale of the farm operations, but rather in their management. In CEECs, effective land reform and hard budget constraints induced sharp shifts in input use and effective management reforms, causing important gains in productivity. In contrast, in Russia and Central Asia restructuring of land rights and farm organization was (much) less radical. As a result, family farming is emerging only slowly, productivity is lagging and local authorities continue to influence farm management through informal relationships.

Third, in the initial reform phase, Chinese leaders chose not to disrupt agriculture any more by *reforming the up-and downstream* sectors. The procurement and input supply systems remained fully under the control of the state. The deregulation of the input and output marketing was only allowed several years after the initial reforms. This

gradual liberalization strategy allowed enterprises to reap the informational benefits from price liberalization while avoiding the disruption associated with the breakdown of the planning system. In Central Europe and Russia, the reform strategy included rapid privatization and restructuring of up- and down-stream enterprises. In the absence of new institutions to enforce contracts, to distribute information, and to finance intermediation, this caused serious disruptions throughout the agro-food chain. Yet, while output in Russia continued to decline in the absence of essential reforms, growth in Central Europe resumed and increased in the mid 1990s with the emergence of new institutions for information, product exchange and contract enforcement.

Finally, rural welfare in transition countries was strongly affected by how the reforms changed households' *access to social security services and infrastructure*. With the exception of China and Vietnam, which had a much lower level of development and much more rural poverty, heavy investments in social security and social infrastructure under the Communist system made that literacy, health standards and food security were much higher than in countries with comparable incomes.

Transition reforms had an important impact on this. The most striking effects seem not to be in terms of food security which remained relatively stable over the transition era, but in terms of cuts in households' investments in human capital, reflecting increasing non-income poverty (see Table 1). For example reductions in school enrolment and in households' health expenditure are common in CEECs. This non-income poverty is more persistent than income drops in many transition countries¹. As a consequence a key implication might be that children, especially from poorer households, suffer a serious long term loss of opportunities. The major effects of this process on food security and on poverty will only be captured in the future.

Social welfare suffered from the economic recession that resulted in declining household incomes, disabling access to social services. Also, economic decline caused social welfare budget cuts in some countries. Moreover, the social security and social provision systems that exist in some of the countries are not adapted to the needs of the newly emerging groups of poor like the unemployed. Finally, transition restructuring has caused a variety of institutional disruptions and implementation problems concerning the organization of public services like health care and education inclusive of social provision schemes, with consequently large interruptions of services or services of low quality. These problems have persisted in countries where institutional disruptions

TABLE 1
Reform indicators and changes in food security and well-being

	Agrarian reform after 10 years	% Initial change in kcalorie /capita/day, Asia 80-99, Others 89-95.	% Change in poverty levels 88-95, 2 dollar international poverty line (1\$ for Azerbaijan)	% Change in life expectancy 88-98
Central Europe			3000	4,05
Czech Rep.	8.6	-*		
Hungary	8.8	-3	840	0,77
Poland	7.8	-1	860	2,33
Slovakia	7.6	-3	141	1,91
Balkan				
Albania	6.8	-7	-	-0,5
Bulgaria	7.6	-18	-	-1
Romania	6.6	-12	1222	-0,1
Slovenia	8.0	-	-	-
Baltics				
Estonia	8.4	-	2260	-1,3
Latvia	8.4	-14	531	-1,3
Lithuania	7.6	-	679	-0,7
European NIS				
Belarus	1.8	-	2301	-4,1
Moldova	6.0	-13	15850	-1,8
Russia	5.6	-12	7303	-3,6
Ukraine	4.0	-21	5780	-4,15
Caucasus				
Armenia	7.2	-	-	-
Azerbaijan	6.2	-15	6810	-
Georgia	6.0	-	-	1,48
Central Asia				
Kazakhstan	5.6	-25	1737	-5,8
Kyrgyzstan	6.4	-	4349	-1,3
Tajikistan	4.2	-	-	-
Turkmenistan	2.0	-	199	0,64
Uzbekistan	2.0	-	2550	-
Asia				
Mongolia	na	-17	-	-
China	na	44	-76	2,02
Laos	na	3	-	3,83
Vietnam	na	21	-36	-

* Due to data limitations, presented data are for 8, 9 or 10 years after the start of transition
 * Early data not available; present kcal/capita/day for Azerbaijan: 2224; Kazakhstan: 2181; Kyrgyzstan: 2833; Tajikistan: 1927 and Turkmenistan:2746, average for FSU and CEECs: 2700kcal/Cap/day.
 Source: World Bank ; TransMONEE, Asian Development Bank, USDA.

have not been solved and not been complemented by strong informal alternatives in rural areas.

It may be worth mentioning that food security and well-being for much of the population in European and Central Asian transition countries actually still compare favourable with the conditions in countries of similar income levels, even during recent times of deep poverty. This is thanks to the long term effects of the high level of social security and health care support before the transition era. However, the persistent poverty in some countries and the decline of the social protection and security systems will affect future poverty and food security trends.

B. Global integration in general has reinforced changes induced by other reforms both positive and negative

The FSU countries were fully integrated in the Council of Mutual Economic Assistance (CMEA) system (the planned inter-country trading regime), trading mainly with other communist countries. The Central European countries were less integrated, but still a large part of their trade volume went through the CMEA system. In contrast, China and Vietnam mainly traded with non-CMEA countries.

The negative terms of trade effect of subsidy cuts and price liberalization was reinforced by trade liberalization and by the collapse of the CMEA trading system which led to trade disruptions in countries where CMEA trade integration was strong, and by the shift to hard currency payments for imports. The impact on consumers was mixed: real food prices increased, but access to higher quality food products increased – directly through imports and indirectly through enhanced competition which forced domestic food companies to improve their standards.

Trade liberalization also reinforced the reallocation of production activities caused by the abolishment of central planning – in fact, one could think of the CMEA as the international version of the domestic central planner. 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. The result has been major international reorganization of production activities.

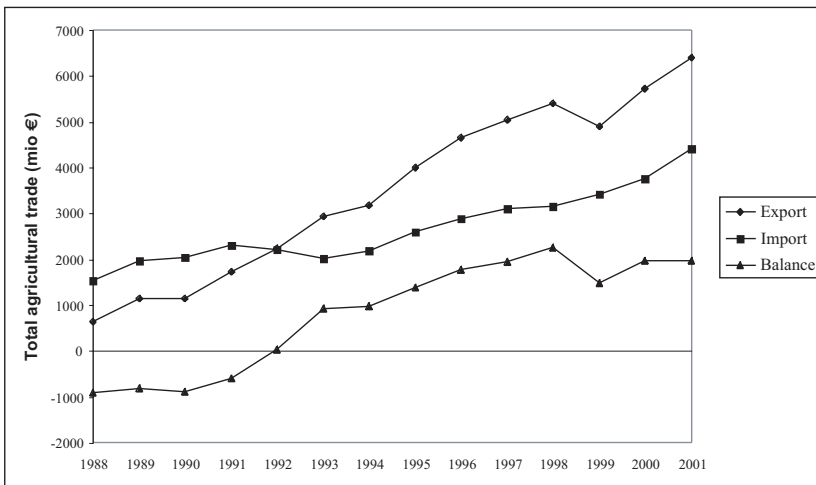
An important development was the shift from centrally imposed extreme specialisation (e.g. dairy production in the Baltics and cotton production in Central Asia) to more diversified production systems, thereby increasing domestic production of staple foods and reducing dependency on single commodities in those countries.

C. *Despite the important disruptive effects of this reallocation process, trade integration in the regional and global economy is positively correlated with income and welfare*

While trade between the CEECs and the FSU has reduced initially, trade between the CEECs and the EU has intensified very strongly over the past decade (see Figure 2). Growing exports to Western markets have contributed to the recovery in CEECs. In addition, integration with the EU induced considerable inflow of capital and direct investments.

Also in China and Vietnam, in particular during the second phase of transition in those countries, increased access to global markets has contributed to growth and reductions in rural poverty. This effect was both direct and indirect. In Vietnam trade liberalization further improved the profitability of rice production, turning Vietnam from a rice importer to one of the largest rice exporters in the world. Indirectly, access to global markets contributed to new jobs and growth in non-agricultural sectors in China and Vietnam thereby allowing rural labor to move out of agriculture into higher earning activities, and reducing the pressure on agricultural incomes.

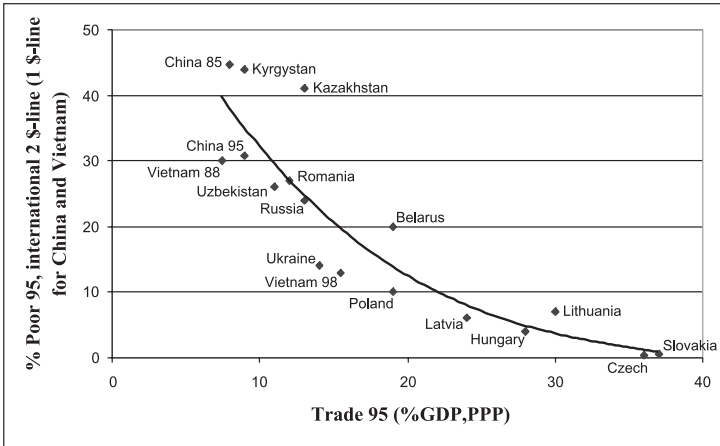
FIGURE 2
Trade between EU and CEECs in agri-food products



Source: European Commission

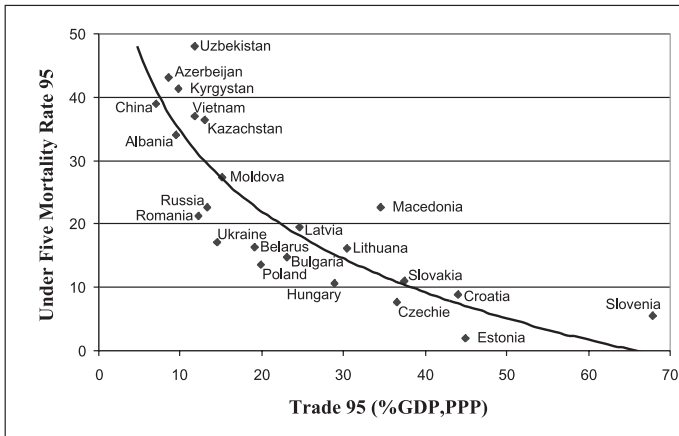
In general, the importance of integration in global markets for poverty reduction and social welfare is illustrated by Figures 3 and 4.

FIGURE 3
Relation between trade (%GDP,PPP) and poverty (% under 2\$ international poverty line) in transition countries



Source: Own calculations based on World Development Indicators, CD-Rom.

FIGURE 4
Relation between trade (%GDP, PPP) and child mortality in transition countries



Source: Own calculations based on World Development Indicators, CD-Rom.

Poverty levels in transition countries are strongly negatively correlated with the countries' openness, measured by the share of trade in GDP. Child mortality is also strongly negatively correlated with global trade integration. It is obviously, and clearly so from the discussion above, too simplistic to interpret this as a simple causal relationship between trade liberalization, growth, poverty and welfare². However, the clarity and strength of the relationship do suggest that increased integration in global markets is consistent both with significant poverty reduction and with strong improvements in health and welfare for transition countries.

D. Labor migration has contributed to growth in several transition countries

Workers from Central European countries have migrated to the EU, and are increasingly taking up important segments of the labor force. Examples are construction work, service jobs and seasonal agricultural work (both formal and informal). These developments are most prominent in places close to the CEEC, such as Germany, Austria, Italy, and Greece. At the same time, workers from further East, such as Ukraine, have migrated to Central Europe. The most extreme migration effect has occurred in Albania, where close to one-third of the workforce emigrated to neighboring European countries, in particular Greece and Italy, contributing strongly to growth and food security in Albania – the poorest country in Europe – mostly through remittance payments.

E. Capital inflows from the West, in combination with integration in WTO and regional trade agreements have contributed to macro-economic stability and policy credibility in those countries where basic reforms had been implemented

This factor, in the framework of the Association Agreements with the EU and the expectations – and conditions – of future accession to the EU has played an important role in Central and Eastern Europe. These factors also had an important, and reinforcing, positive impact on growth indirectly through their stimulating impact on foreign direct investment.

Obviously, liberalized capital flows and trade can also reinforce domestic instability when the fundamentals and policy credibility are not there. This is well illustrated by the 1998 Russian financial crises. (Interestingly, the associated devaluation -and the simultaneous rise on world oil and mineral markets- is credited for providing the initial stimulus for the turn around of the Russian agricultural and food economy.)

F. Foreign direct investment (FDI) has played a key role in stimulating strong and sustainable productivity growth transition economies

Large foreign investments in the food industry and agricultural input supply industries have created important and lasting productivity gains and institutional innovations throughout the agri-food chain, with important spill-over effects on domestic companies and on farms, and thereby rural households (see next section).

FDI has also played an important role in the emergence of new institutions of exchange. Beyond supply of capital, foreign firms have introduced a number of arrangements to encourage greater production and to overcome transition constraints. For example, food processors have negotiated contracts with banks and input suppliers to provide farms with inputs that enable them to deliver high quality products to their company.

This process started already in the first half of the 1990s in the CEECs (Gow and Swinnen (1998)). In countries further east, it started later as some of the basic conditions for attracting foreign investment were not fulfilled until the end of the 1990s. In fact, 1998, the year of Russia's financial crisis and in some ways a low point in transition, also seems to be the turning point for countries as Russia and Ukraine, where important reforms were implemented afterwards and were foreign investment increased significantly afterwards (Swinnen (2003a)).

In summary, global forces have had an important impact on agricultural development and rural welfare in transition countries, but transition reforms have probably been more important. Yet, what seems clear is that the interaction of transition and globalisation can be an important source of growth and improvements of rural livelihoods – when some basic conditions are fulfilled. This conclusion also follows from the analysis in the next section where we take a closer look at the precise mechanism of how those effects can develop.

III. THE MICRO-ECONOMICS OF GLOBALISATION AND TRANSITION IN AGRICULTURE

In this section we analyze how foreign investment, in combination with trade integration, has contributed to sustainable growth. Although foreign direct investments are certainly not new for the last decennia

of globalisation, the strong international split up of marketing chains from primary commodity to processed products is relatively new, and even more so in transition countries and therefore the process and its impact deserve more attention. In contrast to the discussion above, our insights are based on detailed micro-economic evidence. More specifically, the analysis looks at how the opening of the Polish economy, especially for inflows of foreign capital, know-how, and technology is affecting the Polish dairy sector.

The Polish dairy sector was selected for several reasons. First, Poland is a relatively large country by European standards. Yet, it is a small economy in the world market. Second, agriculture is a very important sector in the Polish economy, and is characterized by unfavorable (very small) farm structures and low incomes. Third, dairy plays an important role in Polish – and rural – areas since many of the small farms have at least some milk production. Fourth, the dairy processing sector and the farms are in need of substantial restructuring in order to be competitive on the international market. All these characteristics suggest, *ex ante*, that the impact of globalisation on the Polish dairy sector could have very significant repercussions for the sector, and for rural welfare and development more generally, both positive and negative depending on which effects would dominate.

The literature identifies several ways how foreign direct investors in the food industry can affect upstream suppliers: (1) through the facilitation of adopting new technologies, the provision of working capital, and through solving contract enforcement problems (Gow and Swinnen (2001); Key and Runsten (1999)); (2) through the imposition of higher grades and standards for the supplied product (Reardon et al., 2001; Farina and Reardon (2000); Henson et al. (2000); Dolan and Humphrey (2000)); (3) through a possible preference of the foreign investor for large suppliers to minimize transaction costs (Runsten and Key, 1996; Key and Runsten, 1999; Winters (2000); Dolan and Humphrey (2000); Holloway et al. (2000)).

A. Data and Methodology

Our analysis is based on a 2001 survey of both dairy producing rural households and dairy companies in the Warminsko-Mazurskie region in the North-East of Poland, and statistical data from this region.

We surveyed 290 rural households who were involved in dairy production. The households were selected randomly within municipalities.

Because one of the objectives of the analysis was to study the impact of foreign investment, and because there are relatively few foreign owned processors in the region, we over-represented municipalities in the vicinity to the three foreign owned dairies in the region.

To complement the information from the household surveys we performed a series of in-depth interviews with one of the largest dairy equipment suppliers and with six of the 24 dairy companies the farmers deliver to. Four of the six companies we interviewed are medium size companies (50-70 million liters of milk), one large (420 million liters) and one small (2.5 million liters). Three are cooperatives, two private, and one a joint venture of a cooperative and a private company. In terms of foreign investment, two are majority foreign owned, and two have important links to foreign companies.

B. On-farm investments and quality upgrading

All the interviewed dairies have programs that assist their supplying farms. All have an input (esp. feed) supply program. The companies provide access to inputs, such as feed or seeds and fertilizers for on-farm feed production. Farmers purchase the inputs through company shops and the inputs are paid from the milk checks. Five out of six companies assist farms in investing through credit programs. Investment assistance takes the form of leasing of equipment and cows, also with payments deducted from future payments for milk deliveries, as well as loans for buying new or second hand cooling and milking equipment. The only dairy that did not provide credit assistance programs or agricultural extension services to its suppliers was the small dairy, probably because it did not have sufficient means (size). Most of the companies also provide extension services to their suppliers. Finally, five of the dairies provide bank loan guarantees for bank loans to farmers. Almost all bank loans for farm investments are with preferential interest rates (subsidized interest rates around 5% compared to commercial loans with interest rates often above 20%). In order to obtain such a loan, the farmer needs collateral. However, in many cases land or buildings are not accepted as a bank guarantee. Therefore, most interviewed dairies provide an additional service to their suppliers by co-signing the bank loan. In this way the dairy provides the bank loan guarantee and facilitates its farmers' access to bank credits.

TABLE 2
Investments and loans of farm households

Size (# of cows)	Invests (% of total)	Uses loan to invest (% of A)	Uses dairy loan (% of B)	Uses bank loan (% of B)	Uses dairy loan (% of A)	Uses bank loan (% of A)
	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>	<i>F</i>
1-5	52	54	41	50	21	26
6-10	78	51	43	70	22	36
>10	92	74	43	75	31	54
ALL	76	58	43	69	25	40

Source: Dries and Swinnen (2003)

These assistance programs have a *significant positive impact on on-farm investments* in the region. More than three quarters (76%) of all households in the survey made investments in the past ten years (see Table 2). Of those who invested, 58% used loans. Further, the reason why loans come from dairies or from banks is determined by the *type* of investment rather than farm characteristics. Dairy loans are used almost uniquely for investments in enlarging and upgrading the livestock herd (30%) and cooling tanks (56%). Together these account for 86% of all dairy loans. In contrast, only 29% of all bank loans are used for these types of investments. Note that the loans from dairies are only a partial indicator of the financial assistance offered by dairies. As explained above, part of their assistance is under the form of loan guarantees with the banks. Hence, part of the loans given by the banks are indirectly due to these loan guarantee programs of dairies. They are important. Almost half (45%) of the households who could not obtain preferential bank loans identified lack of sufficient collateral as the main reason.

Furthermore, the programs which assist farms in accessing inputs (mainly feed) enhance investment indirectly by lowering input costs, or reducing transaction costs in accessing inputs, and consequently, through improved profitability.

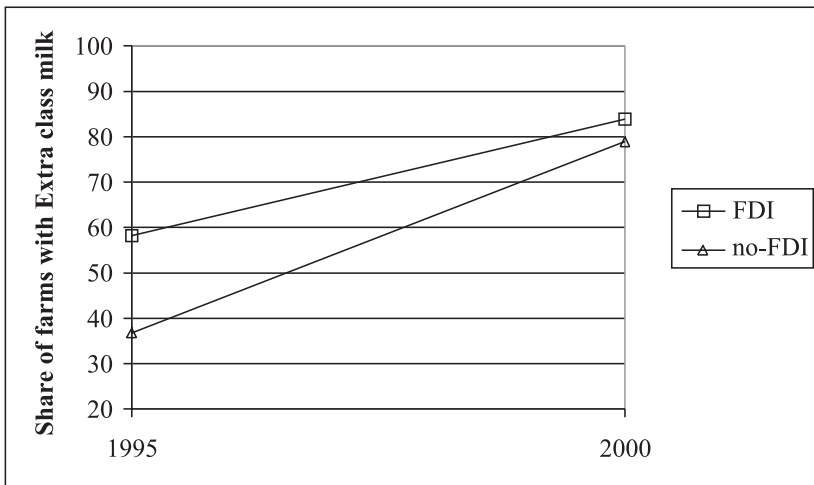
Evidence suggests that *foreign investment* has played a more important role early on in transition as an *initiator of change and institutional innovation*. We found no significant difference in 2001 of assistance programs provided by foreign owned companies and domestic dairies, except for the loan guarantee programs, which were more extensively provided by the foreign dairies. The survey also shows that the share of farms delivering extra class milk (the highest quality by

EU standards) was significantly larger among farmers delivering to foreign owned dairies (58% versus 38% among farmers delivering to domestic dairies) in 1995. However, by 2000 this gap had almost disappeared: 83% versus 79% of farms delivering to foreign versus domestic dairies supplied extra class milk (see Figure 5).

This is in line with qualitative evidence that foreign companies have played a role in providing an example in quality improvement strategy. When one of the foreign dairy companies invested in the region in 1994 milk quality of its supplying farms – as everywhere in the region – was poor. From the start, the foreign investor set out a clear strategy to increase the quality of delivered milk. One of their requirements was that the cooperative – from which they lease collection stations – should install cooling tanks in these collection points. Furthermore, they invested in agricultural extension to raise farmers’ awareness of the importance of milk quality and to improve quality through basic hygienic rules for farmers handling the milk. From the beginning, the foreign investor also required germ count and cell count tests (in accordance with EU standard tests for milk quality classification). Farmers were also allowed to have their milk tested for antibiotic residues free of charge in the dairy’s laboratory. This was especially helpful for farmers who had had a cow disease in their farm and who needed to make sure that no antibiotics residue was left in the milk.

FIGURE 5

Change in share of highest quality milk (EU standard) in the farm survey



Local dairy companies quickly learned about the change in company policies implemented by foreign owners. Soon after local dairies started to copy quality improvement programs, which led to important spill over effects as shown by the dramatic milk quality improvement throughout the region in the last five years.

C. *Farm restructuring, survival, and growth*

A key issue is how opening of the dairy sector to foreign competition and increased quality requirements has affected the *survival and growth* of dairy farms. It is often argued that such forces can drive local companies out of business, in particular the smallest. The latter may result directly from their inability to compete in a liberalized market or because restructuring of the processing companies induces the restructured companies to drop small suppliers and to prefer fewer but larger suppliers to reduce transaction costs.

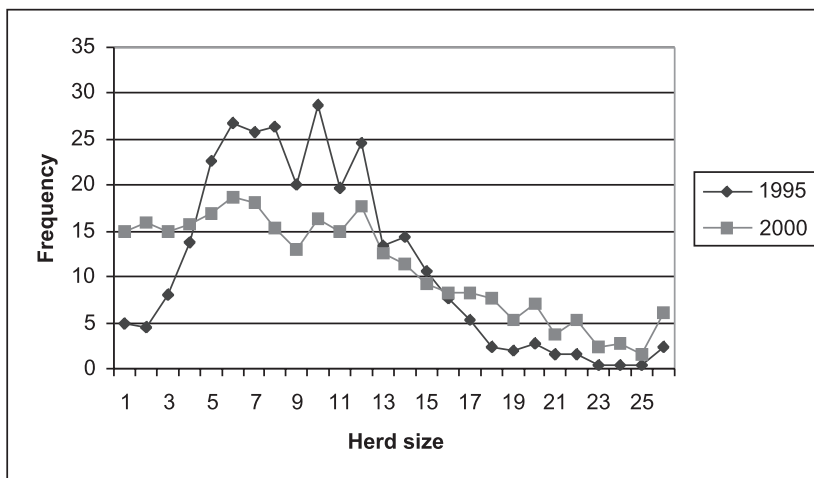
Our survey provides mixed evidence on these arguments. 283 households in our sample delivered milk to dairy processing companies in 1995. Of these, 36 (13%) stopped delivering milk between 1995 and 2000. Ten of them (4%) stopped producing altogether while the rest kept some cows for home consumption. Hence, 87% continued delivering to dairies despite radical restructuring of the dairies and tightened quality demands. Moreover, some of those who stopped delivering might have stopped anyhow: the average age of those who stopped producing is 56 years, compared to 45 years for the entire sample.

The size distribution changed, but only gradually (see Figure 6). Three quarters of the households (211) had between 4 and 12 cows in 1995. The share of farms in the 4-12 cow category has reduced significantly with about the same amount upgrading to a larger size as falling back to smaller, presumably subsistence farms producing solely for home consumption. More specifically, of the 211 household farms, 135 (65%) had still between 4 and 12 cows in 2000; 35 (17%) had less than 4 cows in 2000, while 41 (19%) had more than 12 cows in 2000. Farmers with growing farms were significantly younger (42 years on average) than those whose farm size declined (51 years on average).

It is clear from Figure 6 that the farm size distribution is now much flatter than before. However, if one considers the change in the distribution in terms of numbers of cows by farm size, the dynamics look somewhat different. There is an important increase in the number of

FIGURE 6

Size distribution of dairy Farms in total survey sample (moving average)



cows kept by farms with at least 15 cows, while there is only a small increase in the number of cows kept in the smallest farms. Hence from this perspective there is a much stronger shift towards larger farms, which obviously are still small by EU or US standards. It is not clear to what extent this re-distribution process will continue. Some studies suggest that market economies are increasingly characterized by a bi-modal farm distribution with a ‘disappearing middle’ in farm structures (Edwards et al. (1985); Garcia et al. (1987); Weiss (1999)). However, a recent study by Wolf and Sumner (2001) finds that farm size distributions for US dairy farms are not bimodal.

To complement our qualitative insights, we econometrically estimated the effect of the FDI, assistance programs, and of other factors such as age and human capital of the farmers, on the survival and growth of the farms. The regression specifications and results are in Dries and Swinnen (2003). The regression analysis confirms the main arguments here. More specifically, assistance programs provided by dairy companies have a significantly positive impact on the likelihood of farm survival. Dairy companies that provide more assistance programs to their farmers have fewer farmers that leave the sector. Moreover, farms delivering to dairy companies with more assistance grow faster. Interestingly, after domestic companies have integrated the

organizational innovations introduced by foreign companies, foreign ownership of the dairy company has no significant influence on the survival or growth of supplying farms.

In combination, these results lead to an important conclusion on the impact of foreign investment. Foreign investment plays an important positive role on the survival and growth of farms *indirectly*, by initializing farm assistance programs and institutional innovations and providing an example of how such innovations can work. Moreover, we do not find evidence that foreign owned companies are more likely to cut off small farmers from their supply base.

Finally, although 'hard' empirical evidence on these developments is still limited so far, increasing empirical evidence suggests that they are very important and increasing rapidly in transition countries (see Swinnen (2003b) for examples).

IV. CONCLUDING COMMENTS

Globalisation forces have played an important role in transition countries' agricultural development and rural livelihoods. There are multiple effects and interactions. Global integration was only one of several key reforms that affected agricultural development and rural incomes in transition countries and it has reinforced changes induced by other reforms both positive and negative. Despite the important disruptive effects of the international reorganization of production activities process, there are several important positive impacts of trade liberalization and integration in the regional and global economy. For instance, labor migration has contributed to growth in several transition countries. Furthermore, capital inflows from the West, in combination with integration in WTO and regional trade agreements have contributed to macro-economic stability and policy credibility in those countries where basic reforms had been implemented. Finally, foreign direct investment has played a key role in stimulating strong and sustainable productivity growth in the CEEC agri-food economies since 1993.

In the last part of the paper we analyzed the micro-economic effects of globalisation and transition, focusing on foreign investment in agri-food chains in transition countries. After foreign investment, processing companies start a process of vertical integration through contracting with local suppliers in which input and output markets are interlinked. The contracting is associated with enhanced standards

requirements of supplies while at the same time the companies provide assistance programmes to improve supplier management, and to enhance access to technology, credit and other inputs. In combination the contracts and assistance programmes are designed to overcome market imperfections. The contracts are enforced by interlinking the various markets. This process leads to important positive vertical spill-overs for the suppliers. When domestic companies observe these successful vertical integration strategies, they start copying the strategies. Our analysis shows that these horizontal spill-over effects are strong and rapid. In combination these effects have caused significant improvements in small suppliers' investments, productivity and product quality. Furthermore, there is growing evidence that these developments are increasingly important and that they are more widespread than what is generally assumed.

NOTES

1. Globally the opposite takes place, non-income poverty follows the trends in income poverty. In the era of Structural Adjustment Programs in Sub Sahara Africa however, similar observations were made: as growth retook, the incidence of income poverty decreased in many countries while non-income poverty increased. Most of this variation was explained by budget cuts for public health and education in the case of Sub Sahara Africa.
2. A similar relationship was found globally by various authors, including Dollar (1992), Edwards ((1992) and (1998)), Sachs and Warner (1995), Frankel and Romer, (1999) and Dollar and Kraay (2001), using different indicators for trade and trade openness. Rodriguez and Rodrik (2000) and Rodrik (2000) critiqued these studies for not using more direct measures of trade policy.

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