



**AgEcon** SEARCH  
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

*The World's Largest Open Access Agricultural & Applied Economics Digital Library*

**This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.**

**Help ensure our sustainability.**

Give to AgEcon Search

AgEcon Search  
<http://ageconsearch.umn.edu>  
[aesearch@umn.edu](mailto:aesearch@umn.edu)

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

<p style="text-align: center;"><b>SIMON BRAND GEDENKLESING</b> <b>SIMON BRAND MEMORIAL LECTURE</b></p>
--

*Die Simon Brand Gedenklesing is op 22 September 2004 te Somerset-Wes gelewer.  
The Simon Brand Memorial Lecture was delivered on 22 September 2004 at Somerset West.*

## **Agricultural transformation: Lessons from experience**

JFM Swinnen<sup>1</sup>

### **1. Introduction**

It is now fifteen years ago that the Berlin Wall fell, the start of a vast set of changes throughout the countries of Eastern Europe and the former Soviet Union. Reforms in the Communist world had started earlier further east: first in China in the late 1970s and in Vietnam in the mid 1980s. The changes affected society in a multitude of ways. They affected the way the political and economic system operated but also the social organization of society, the psychology of the people living in the countries, and the culture of day-to-day life.

In this essay I focus on how these changes affected the rural economy and the agricultural and food sector. I will discuss developments and performances of the countries during transition, the causes behind them, and the policy lessons they imply. My analysis relies heavily on work I have done with various co-authors on these issues and I refer to these publications for details on some of the issues and arguments which I will forward here somewhat too brief to do justice to their complexity. For more detailed arguments and analyses I refer in particular to Rozelle and Swinnen (2004) and Macours and Swinnen (2000, 2002).

### **2. Decline and growth during transition**

When looking at the transformation of the rural economies and the agri-food sector of transition economies, one observes at the same time similar characteristics and diverging patterns. It is from confronting the similarities and the diverging experiences that one can learn and try to identify the factors affecting the economic behaviour of the systems.

---

<sup>1</sup> Swinnen is professor of Economics and Director of LICOS – Centre for Transition Economics, Katholieke Universiteit Leuven ([www.econ.kuleuven.ac.be/LICOS](http://www.econ.kuleuven.ac.be/LICOS)). Contact address: [Johan.Swinnen@econ.kuleuven.ac.be](mailto:Johan.Swinnen@econ.kuleuven.ac.be).

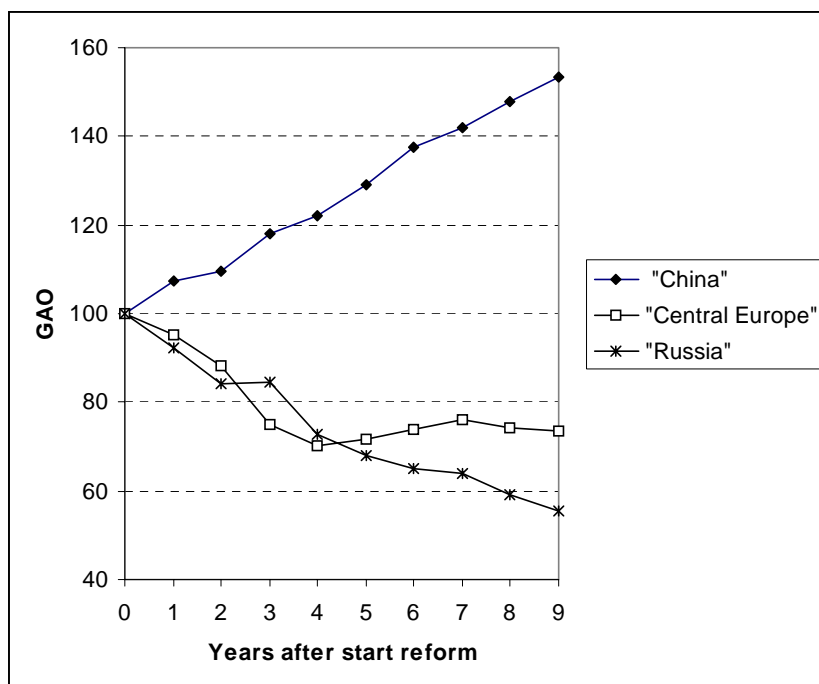
Performance differs strongly among transition countries. One can distinguish three “extreme” patterns in agricultural transition, summarized in Figures 1 and 2 for the first decade of transition.

- *Pattern I (“Central Europe”)*: A strong decline in gross agricultural output (GAO) coincides with a strong increase in output per worker because of a strong outflow of labour from agriculture. This is the pattern followed by the Czech Republic, Slovakia and Hungary: GAO declines by around 30% during the first years of transition, but stabilizes after 4 years. At the same time, agricultural labour productivity (ALP) increases rapidly: on average around 10% annually during the first 9 years of transition.
- *Pattern II (“Russia”)*: A strong decline in GAO coincides with a strong decline in ALP. Russia, Ukraine and Belarus are typical examples of this pattern, as are several other Newly Independent States (NIS). On average, output fell by almost 50% in these countries and labour productivity by around 30%.
- *Pattern III (“China”)*: A strong increase in GAO coincides with an, albeit slower, increase in ALP. Examples are China, Vietnam, and, in Europe, also Albania. On average, output increased by more than 50% in China and Vietnam, while labour productivity increased by 25%.

The causes of these differences in performance include both variations in reform policies and in initial conditions.<sup>2</sup> While most recognize the impact of both factors, there has been a strong debate on the relative importance of the various factors, which has been most intense on what the Chinese reforms imply for reforms elsewhere. Chinese reforms have resulted in extraordinary growth and are argued to have been successful because they were “gradual”, in contrast to reforms in Central and Eastern European Countries (CEEC) and the former Soviet Union (FSU) (Roland & Verdier, 1999). However, others have argued that the difference in structural characteristics of the Chinese economy at the outset of transition makes it a unique situation, with very little policy lessons to learn for CEEC and FSU transition countries (Sachs & Woo, 1994).

---

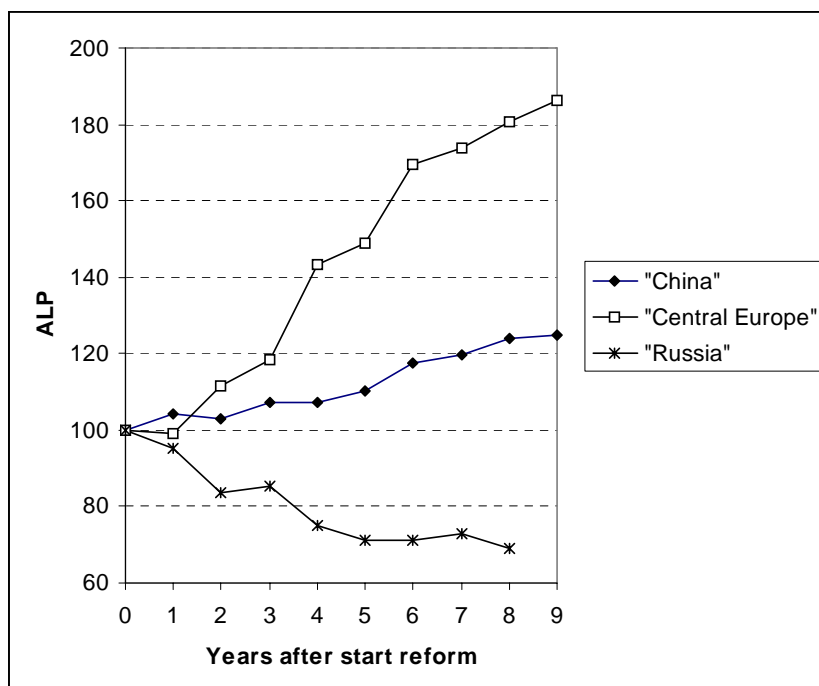
<sup>2</sup> *The discussion here draws heavily on several studies in which we estimated the impact of reform policies and initial conditions, and their 'intermediate results', (i.e. changes in relative prices, farm restructuring, changes in property rights and overall economic liberalization), on performance, i.e. agricultural productivity and output. Two studies (Macours & Swinnen, 2000b, 2002) use aggregate data for 15 transition countries; the third (Macours & Swinnen, 2000a) uses annual data on crop output for eight CEECs. A more comprehensive survey is in Rozelle and Swinnen (2004).*



Note: \* "China" is the average for China and Vietnam; "Central Europe" is the average for Czech Republic, Slovakia and Hungary; and "Russia" is the average for Russia, Ukraine and Belarus.

Source: Own calculations based on data from OECD and FAO.

**Figure 1: Changes in Gross Agricultural Output (GAO)\***



Note: \* "China" is the average for China and Vietnam; "Central Europe" is the average for Czech Republic, Slovakia and Hungary; and "Russia" is the average for Russia, Ukraine and Belarus.

Source: Own calculations based on data from OECD, FAO, ADB and national statistics.

**Figure 2: Changes in Agricultural Labour Productivity (ALP)\***

### 3. Impact of initial conditions

Initial conditions vary substantially among the countries (see Table 1). At the outset of transition, China and Vietnam had the lowest GNP/capita level. Related to the level of development, the share of agriculture in employment was considerably higher in China (around 70%) than in Russia (less than 20%), and was the lowest in Central Europe (13%). China and Vietnam had a very labour-intensive agriculture. The man/land ratio was higher than one, compared to less than 0.15 in Central Europe and Russia.

**Table 1: Initial Conditions and Policies in the Transition Patterns\***

	Patterns		
	Central Europe	Russia	China
<b>Initial Conditions (IC)</b>			
GNP/capita PPP		6803	950
Share of agriculture in employment	13	17	70
Agric. labour intensity	0.13	0.09	1.49
Legal land ownership	Individuals <sup>o</sup>	State	State
Pre-reform agricultural price policy	Subsidized	Subsidized	Taxed
Years under central planning	42	73	32
<b>Reform Policies (RP)</b>			
Land reform procedure	Restitution <sup>o</sup>	Share distribution	Physical distri
Property rights reform	Fast	Slow	Fast
<b>Policy Outcomes (PO)<sup>#</sup></b>			
Relative price change		-60	+24
Use rights		Weak	Strong
% agricultural land in individual farms	16	11	99
Overall liberalization index	0.86	0.60	0.15

Notes: \* The values are the averages of the representative countries from each pattern (Czech Republic, Slovakia, and Hungary for "Central Europe"; Russia, Ukraine, and Belarus for "Russia"; China and Vietnam for "China").

<sup>o</sup> Part of the land in Hungary was owned by collective farms and (therefore) only one-third of Hungarian land was restituted; the rest was privatized through compensation bonds and physical distribution.

<sup>#</sup> Five years after start of the reforms.

Source: Macours and Swinnen (2002).

Pre-transition agriculture in all countries in Table 1 was characterized by the dominance of large-scale farms.<sup>3</sup> In China, the collective farms had legal and effective property rights while in Vietnam land was state owned but the effective property rights were controlled by the collective farms. In Russia and other FSU countries land was nationalized during communism, while in Central Europe most collective farm land was still legally owned by individuals, while effective property rights were controlled by the state or the collective farms.

<sup>3</sup> Only in former Yugoslavia, Poland, Laos and Myanmar a majority of agricultural land was managed by individual (family) farms.

The collectivisation of agriculture and introduction of central planning occurred after the Second World War in Central Europe and East Asia, while in Russia at the beginning of the century. Experience with private and individual farming was hence more likely to be present in the rural households in the first group of countries.

In China and Vietnam agriculture was heavily taxed, while in most of the CEECs and the FSU, agriculture was generally supported with heavy subsidies. Also, pre-reform, China and Vietnam mainly traded with non-CMEA<sup>4</sup> countries, while the FSU countries were fully integrated in the CMEA system, trading mainly with other communist countries. The Central European countries were a bit less integrated, but still a large part of their trade volume went through the CMEA system.

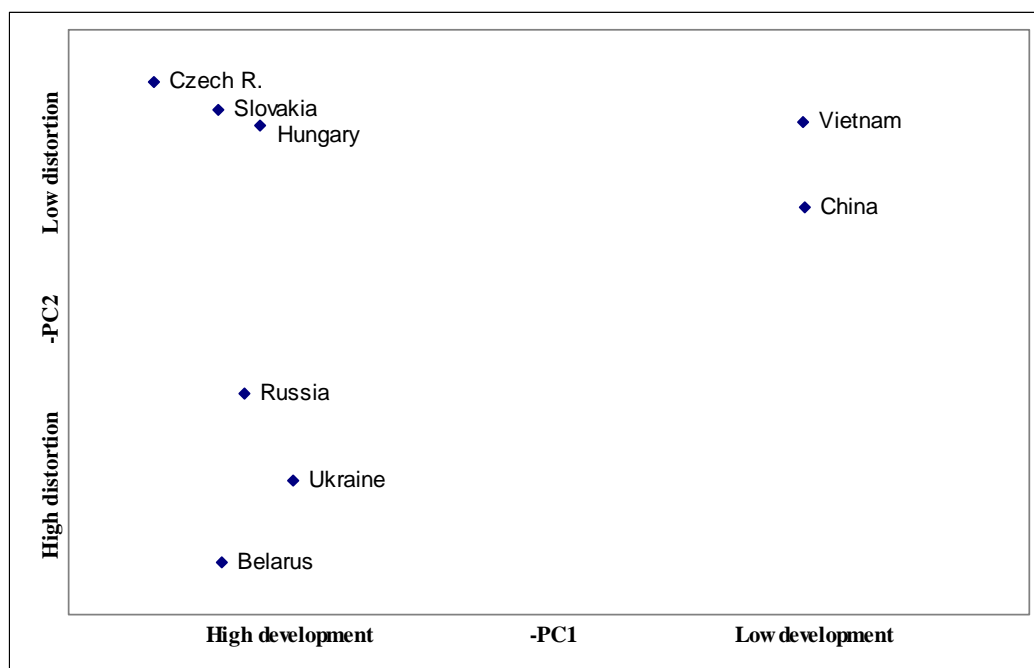
To estimate the impact of initial conditions, we used a combination of a principal component analysis and regression analysis in Macours and Swinnen (2000b). We show that six indicators of initial conditions (see Table 1) can be captured by two principal components:

- *PC1* has high negative weight for income level, and high positive weights for labour intensity and the importance of agriculture in the economy, and can therefore be interpreted as an index of the level of development at the beginning of transition.
- *PC2* has high positive weights for years under central planning and integration in the CMEA, and a high negative weight for land in private ownership pre-reform, and can be interpreted as an index of the level of distortions at the beginning of transition.

Figure 3 plots all the countries according to these indices of development (*PC1*) and distortion (*PC2*). The three patterns of transition, based on performance, can be clearly distinguished within these initial conditions classification: Central Europe with a higher level of development (*PC1*) and lower pre-reform distortions (*PC2*). Russia, Ukraine and Belarus differ mostly from this first group by higher pre-reform distortions. China and Vietnam had a much lower level of development than the two other groups, and medium levels of distortions.

---

<sup>4</sup> The Council of Mutual Economic Assistance (CMEA), also sometimes referred to as COMECON system, refers to countries where trade was 'centrally' planned and managed by trade arrangements between the countries.



Source: Macours and Swinnen (2000b).

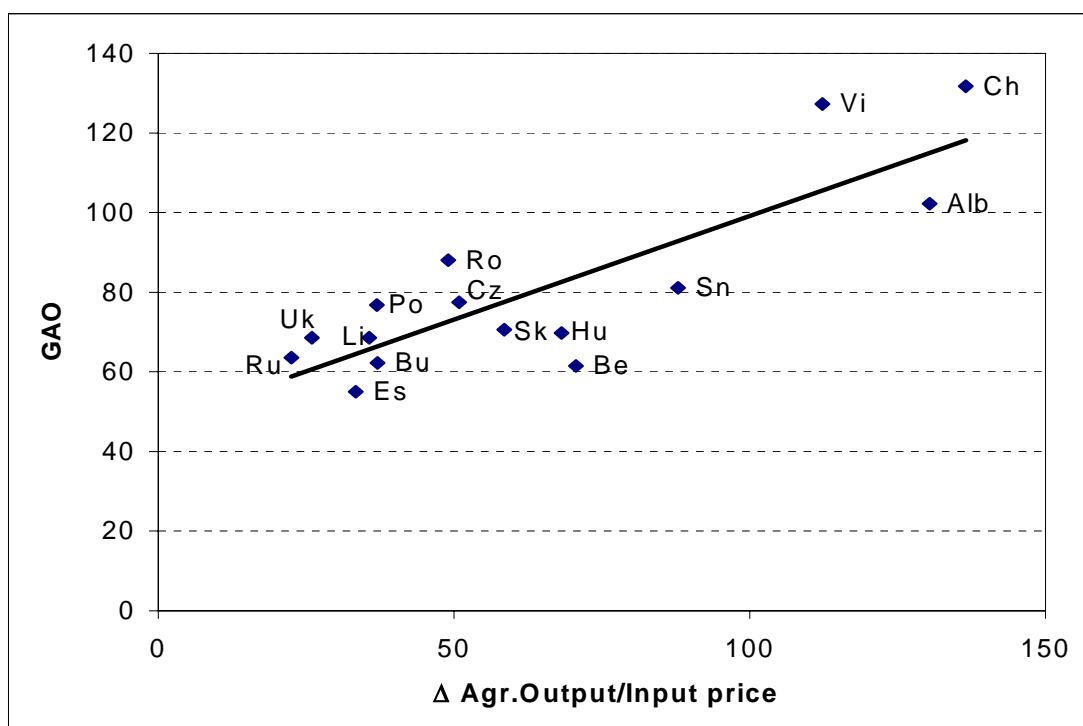
**Figure 3: Classification by principal components of initial conditions: index of pre-reform development (PC 1) and index of pre-reform distortions (PC 2)**

Our regressions show that during the first years of transition, agricultural output developments were to an important extent determined by initial conditions, both directly and indirectly, through their effect on policy outcomes. However, the results of the estimations also suggest that (exogenous) reform policy choices played an important role in determining labour productivity developments during the first years of transition. After correcting for the endogenous part of the different policy outcomes the establishment of strong use rights and the overall liberalization of the economy has a significant positive effect on agricultural labour productivity. Let us now go into more detail on the impact of the reform policies.

#### 4. Impact of reform policies

*The relative price changes following price and trade liberalization have importantly affected the post-reform output developments.* These liberalizations, in combination with subsidy cuts and the collapse of the CMEA trading system resulted in a dramatic fall of relative prices for farms, and in output. Figure 4 shows a positive relationship between the relative price changes and the output changes after the first 5 years of the reform. Importantly, the only TCs where GAO has increased during transition are the countries where relative prices have increased – and vice versa. Macours and Swinnen (2000a) estimate that

terms of trade effects caused 40-50% of the fall in average crop output in eight CEECs during transition.



Source: Macours and Swinnen (2002).

**Figure 4: Output and price changes after 5 years of reform in 15 transition countries**

The *shift from collective farming to individual (family) farming* had a positive impact on agricultural output. Due to monitoring problems, the incentive to work in a cooperative farm is lower than in an individual farm. After the change of agricultural production from collective farms to individual farms the income of the farmer is directly related with the performance of the farm, and therefore individual farming increased incentives for labour effort. This causes an increase in the productivity of labour as well as in the intensity with which the other inputs are used, as was also found in other studies on China (Lin, 1992) and Vietnam (Pingali & Xuan, 1992).

Interestingly, the shift to individual farms had a negative impact on average labour productivity in agriculture as the positive impact on labour productivity of improved labour effort and lower monitoring costs was more than offset by other effects. First, the fragmentation of assets induced by the break-up of collective farms had a negative impact. Second, substitution of other inputs by labour contributed to the negative relationship with *average* labour productivity. Substitution of other inputs by labour can be caused both by the increase in the marginal productivity of labour, *ceteris paribus*, with the



shift to individual farms and by a change in the relative price of labour vis-à-vis the cost of other inputs. The latter is reinforced by capital constraints and credit market imperfections, which are widespread during agricultural transition. Finally, in food insecure circumstances worker owners will prefer individual farming rather than leaving agriculture.

Privatization and land reform affected performance differently depending (a) on how it affected property rights, and (b) on the environment. Regarding property rights one can distinguish between use rights and transfer rights. Transfer rights have been established in Central Europe, and after 1994 also in Russia. Although land transfers have occurred on some occasions in China, there is no legal framework guaranteeing the transfer right of land. However, even in the TCs where land transfer rights are legal, land sales are *de facto* largely absent during the period we analyse. Still, leasing or transfer of use rights had an important impact on land allocation.

The restitution process, as in Central Europe, and the land distribution process in China created stronger individual use rights than the share distribution process in Russia and Ukraine. Despite the allocation of land shares to members, important transaction costs limited the effective use rights of the individual owners.

These differences are important since the transfer of effective use rights to individuals generally induced a decline in output and an increase in productivity. The creation of effective use rights caused profit-maximizing behaviour with hard budget constraints. This resulted in a reduction of surplus input use and therefore a decline of output. At the same time it improved the allocation and efficiency of input use, causing an increase in productivity.

The impact of privatisation on productivity is conditional upon liberalization in the rest of the economy. In particular, slow liberalization resulted in significant rigidities in the capital and labour market, reducing both the inflow of capital for working capital and investments, and the outflow of surplus labour. Macours and Swinnen (2000a) conclude that because of these market imperfections the direct efficiency impact of privatisation in countries such as Romania and Bulgaria was negative, while being positive in the Central European countries, such as Hungary and the Czech Republic, where liberalization had removed factor market imperfections to a greater extent. In countries such as Romania and Albania, productivity gains from privatization arrived primarily indirectly through the shift to individual farming.

Furthermore, in Central Europe strong productivity gains occurred despite a relatively limited shift to individual farming. Compared to Russia and Ukraine where large-scale farms continued to dominate as well, farms in Central Europe generally have undergone more effective restructuring, including both management reform and operation adjustments. In contrast, Lerman and Csaki (1997) report that, despite some downsizing in restructured farms, internal reorganization has not produced deep results in Russia and Ukraine and the collective framework has preserved most of its traditional function. As a result of this lack of restructuring, Sedik, Trueblood and Arnade (1999) measure a decline in efficiency on the large farms during transition in Russia.

Finally, organization and contract disruptions caused a decline in output and productivity during transition. *External* disruptions resulted from the collapse of the CMEA trading system. *Internal* disruptions resulted from the break-up of the strong integrated system of supply chains, with the central planner as enforcement mechanism. The break-up of this contracting system with privatisation, restructuring, and liberalization, in the absence of alternative contract enforcement mechanisms and information distribution systems caused important drops in output and investment (McMillan, 1997). Several explanations of this result focus on the disruptions of relation-specific investments, due to information problems, search frictions, and absence of contract enforcement mechanisms.

Rozelle (1996) explains how the initial and abrupt liberalization of the fertilizer market in China in 1985 caused major disruptions in fertilizer supplies, leading the government to retake control of fertilizer sales in 1987. Five years later, during which time China's domestic marketing capacity developed, new fertilizer liberalization resulted in no disruption.

Macours and Swinnen (2000a) estimate that between 30% and 60% of average crop output decline in CEECs was due to institutional disruptions. Based on a case study of the Slovakian sugar sector, Gow and Swinnen (1998) show that output and yields increased dramatically, both at the processing and at the farm level after new (FDI-induced) contract enforcement mechanisms and solutions to input contracting were implemented. The solution to contract hold-ups in this case – as in other transition countries (McMillan, 1997) – comes from private rather than public enforcement.

## 5. Patterns of rural transition

Table 1 summarizes the relationship between the differences in economic performance and the initial conditions, the key reform policies and the policy

outcomes. Both Russia and Central Europe were characterized by pre-reform subsidization of agriculture, relatively low labour intensity of farms and a small share of agriculture in the economy but differ in the pre-reform land ownership and the period under central planning. While both in Russia and Central Europe terms of trade declined in agriculture following price and trade liberalization due to pre-reform taxation of agriculture, the choice and implementation of privatisation, land reform and overall liberalization policies differed substantially.

In Central Europe, land reform through restitution and physical distribution led to stronger individual property rights. Further, the more extensive and more radical liberalization of the general economy in Central Europe reduced obstacles for intersectoral labour mobility. In contrast, in Russia land ownership rights were allocated under the form of shares in the former collective and state farms, causing weak individual property rights and limited incentives for resource allocation improvements. Also, the dependence of individuals on farms for food security and social benefits, such as housing, further reduced mobility and the outflow of labour from agriculture. In combination with low overall liberalization and the lack of individual farming skills after several generations of communist rule, labour mobility from farms and to other sectors is constrained. Hence surplus labour has not left agriculture and is trapped in large-scale farms that continue to be dominated by old management. The consequence is that with decreasing terms of trade, while GAO has declined to a similar extent as in Central Europe, ALP has fallen with GAO in Russia, while it increased strongly in Central Europe.

A third pattern, followed by China and Vietnam is characterized by growth in both output and productivity during transition. These countries started from a very labour-intensive agriculture, which was taxed. Price and trade liberalization caused an improvement in the terms of trade. Institutional reforms included the distribution of clear and strong land use rights to farm workers and rural households, and a complete break-up of the collective and/or state farms into individual farms. Because of the high labour intensity (and low labour productivity) on the collective farms the shift to individual farming implied important benefits because of improved labour incentives and profit maximization, and low costs from fragmentation. The strong shift to individual farming was also stimulated by the low level of income in these TCs where food security concerns played an important role: in all these TCs radical and widespread decollectivization emerged to some extent spontaneous – as a reaction to a major crisis.

In combination these factors contributed to increases in GAO and ALP. However, the food security concerns as well as the link between social benefits (such as housing) and economic sectors increased intersectoral (and rural-urban) mobility costs, contributing to the slower growth of labour productivity than output.

Institutional and organizational disruptions contributed to investment and output declines. They are argued to have been more important in Central Europe and Russia than in China with its more 'gradual approach' to market liberalization. Several analyses show that these disruptions have caused important declines in output.

However, our analysis suggests that key determinants of output growth in China are (a) the terms of trade effect - which was importantly determined by the pre-reform taxation of agriculture - and (b) radical reforms in the allocation of land property rights and in the re-organization of agricultural production. In fact, Albania, the only European country with similar structural characteristics as China (and Vietnam), introduced radical market liberalization causing strong disruptions in the exchange relationships. This has not prevented it from recording high growth rates in GAO as in China (and Vietnam) - in fact, since the start of the reform in 1991 and despite the chaos following the 1997 political upheaval, average GAO growth in Albania has been almost 10% annually (Cungu & Swinnen, 1999).

All this suggests that key determinants of agricultural growth during the first years of transition in China have also been initial conditions, (radical) land reform and farm restructuring. Hence, one should be careful and nuanced in using the "Chinese miracle" as an example for advocating gradual reforms in other transition countries.

## **6. Conclusions and lessons**

*1. Pricing policy and shifts in relative prices between the pre-reform and post-reform eras have played an important role in output changes. Virtually all reformers sought to bring their pricing structure more in line with international prices so they would better reflect the relative scarcities of resources and consumer demands. In the process of eliminating the distortions, however, relative prices moved in one direction in East Asia and the opposite elsewhere. During the planning era, China and Vietnam had tried to force industrialization in part by taxing agriculture with low prices in order to keep wages of industrial workers low. Their counterparts in most of CEE and the CIS nations, in contrast, had tried to stimulate food production by subsidizing inputs and*

providing high bonuses for marketed surplus. Hence, in the rationalization of prices, reformers in East Asia raised the prices of output, which strengthened the output-to-input price ratio. At the same time, their counterparts outside East Asia eliminated planning and many or all of the input subsidies and output premiums which led to plummeting output-to-input price ratios. Since producers in all transition economies responded to price changes similarly (increasing output as output prices rose and decreasing output as input prices rose and vice versa), the direction of the price changes after reform help explains why East Asia's output moved up in the initial post reform era and those of CEE and the CIS nations trended down.

2. *We should be careful about which indicator we use to measure transition performance.* If we use an indicator of efficiency or productivity instead of output, it is less clear that agricultural transition in Central Europe was less successful than that in China and Vietnam. If prices need to reflect long-run scarcity values of outputs and inputs, then efficiency requires that leader raised agricultural prices in East Asia, a move that naturally would lead to higher output. Likewise, when subsidies were removed, rational producers should use less inputs, actions, which as seen by the record in CEE and the CIS where the ratio of output-to-input prices fell sharply, led to falling output in these countries. In short, although leaders in many countries count increases in output as success, productivity shifts, not production trends, should be the primary metric for measuring success in transition agricultures.

3. *Market liberalization policies reinforced the shifts caused by relative price changes and also help explain the sharp collapse in Central Europe and Russia during early transition.* When reformers took control in many East European countries the systems through which the pre-reform producers had purchased their inputs and sold their output disappeared. Hence, it is easy to understand why production and productivity fell so dramatically in the first year or two after reform. In retrospect such a fall should have been expected since it is hard to conceive how completely new institutions of exchange could emerge in a matter of months. Perhaps more surprising is the speed in which institutions of exchange re-emerged in Central Europe. Although deep markets characterized by the meeting of numerous buyers and sellers still had not materialized after several years of reform, the Central European experience shows how alternative institutions appeared to facilitate exchange. In those countries in which the institutions emerged, output and productivity began to recover by the mid 1990s and productivity growth has continued since. In those countries in which such institutions did not emerge, productivity continued to lag.

In East Asia reformers moved more gradually and in the initial years almost made no change to the state-dominated marketing channels that were set up during the planning era. So while market liberalization did not play much of a role in pushing up output and productivity of East Asian producers in the initial years after reform, it did not hold it back. In the longer run, however, policies in East Asia facilitated the entry of thousands of private traders and the gradual rise of markets in the post-reform era has been linked with positive, albeit small, productivity increases.

*4. Property rights reform, and the farm restructuring that it facilitated, induced a rise of productivity in transition countries.* It certainly was true in East Asia. Also in several Central European countries empirical studies identify the positive links between property rights reform and productivity. But while the effects of land reform have both been positive and strong, the mechanism that has led to enhanced performance in East Asia and Central Europe has been quite different. In East Asia income and control rights were given to producers, creating millions of new family-run farms. Land ownership remained with the state and privatisation of land is still being debated today. The partial reforms, however, appear to have provided enough incentives and improved decision-making capacity to have ignited the rapid rise in output and productivity in Asia.

In contrast, privatisation through restitution characterizes the main way that Central European reformers implemented the reforms. The reforms themselves, however, were not enough since many of the new landowners had long since moved to the cities. Instead, the emergence of land leasing contracts allowed the growth of individual farms and the survival of large corporate farms (albeit with less labour which was systematically laid off by large reorganized farms in the most advanced Central European economies).

The picture in Russia and other CIS nations was fairly bleak in terms of property rights reform-induced productivity rises. Land was distributed as paper shares to workers of the collectives and state farms. Individuals could not identify the piece of land that belonged to any given share, causing weak land rights for individuals and undermined their ability to withdraw land from the large farms and establish a private farm. As a result, family farming emerged only slowly and large farms have had fewer incentives to restructure. The lack of clear rights that linked income to effort and inability to provide farmers a way to restructure their farms held back any rights-generated output or productivity rises.

*5. That said, the lesson regarding property rights reforms is nuanced. Good rights and the incentives they created certainly contributed to and will continue to affect*

*performance positively. Poor ones undoubtedly account, in part, for the poor performance of some agricultural systems.*

*However, full privatization of land is not needed to induce efficiency gains. In many countries the introduction of private ownership and sale of agricultural land encountered strong social and political opposition and kept reformers from providing a complete complement of rights to producers. For example, the top leadership in both China and Vietnam did not allow private ownership of agricultural land. Today, in China and Vietnam, farmers still cannot buy or sell land. The strong positive effect of rights reform and restructuring on output and productivity demonstrates that allocating clear and well-identified land use and income rights can by themselves enhance efficiency, investment and growth. In contrast, as seen from the cases of many CIS nations, if rights are too weak, there is little effect on performance.*

*Even in the best performing countries, property rights still have many major constraints. For example, China's leaders are still struggling to figure out a way to provide more secure tenure rights for farmers. Most pervasive, local leaders in many regions of the country continue to periodically expropriate land, shifting it among farmers for a variety of reasons (Brandt *et al*, 2002). Although the impact on the investment in land and other long-term farming assets is typically found to be relatively minor (Hanan Jacoby *et al*, 2002), poor land tenure may be undermining the emergence of rental markets and keeping farm size from increasing and precluding farmers from using land as an asset for collateral which could be constraining investment in non-farm activities (Benjamin & Brandt, 1999). In CEE, observers of land reform are worried about excessive land fragmentation (e.g. in the Balkan countries) and monopolistic control of large corporate farms in an emerging land market (e.g. in Slovakia).*

*6. The lessons regarding the impact of farm restructuring also are nuanced. To start, it should be noted that except in labour-intensive agricultural economies, the individualization of farming should not be counted as an indicator of successful transition. Individualization frequently has been accompanied by a dramatic reduction in farm size, and in some cases, falling farm size leads to a loss of scale efficiencies. Smaller farmers in most CEE and CIS nations also experienced a sharp fall in their access to capital that was available for use in production. While moves to small farms may make sense in some labour-abundant agricultural economies in the short run, in the longer run the transition to a modern state means that farm size must be sufficiently large and the intensity of capital use should remain fairly high.*

7. *Natural resource availability and initial technology, which vary tremendously across the transition world, have played an important role in affecting the impact of farm restructuring (Swinnen & Heinegg, 2002).* For example, technology played a decisive role in creating the success of the break-up of collective farms. With labour-intensive technology, the cost of breaking up large collective farms in terms of losses of scale economies is smaller, and the gain from improved labour incentives from the shift to family farms is larger. As a result, since farms in China and Vietnam are much more labour-intensive than the typical farm in the rest of the transition world, the reforms that provided farmers in East Asian nations incentives and individualized their farms were able to create relatively large shifts up in productivity.

In contrast, many regions outside of East Asia were characterized by an entirely different farm technology, which greatly affected the impact of farm restructuring. Large parts of Russia, Ukraine and Central Asia are land abundant. Many of the richer parts of CEE also have much less labour-intensive production systems. The returns to breaking up the large-scale farms into individual farms in many of these countries necessarily are lower than the gains experienced in East Asia.

In some Eastern European countries and some CIS with high labour intensity there were also strong benefits from farm individualization. The nations that benefited from farm individualization were those in the poor areas of the Balkan and Transcaucasian regions. Specifically, the four countries (Albania, Azerbaijan, Armenia and Georgia) which have man/land ratios above 0.2 persons per hectare (ratios that are similar to those of East Asia) are the nations that have experienced the highest growth rates of TFP after land was distributed to households and large-scale individualization of farms followed. Such high rates of productivity gain are similar to those experienced in Asia during the first reform years.

8. *Even without individualization corporate farms restructuring can lead to strong rises of productivity in transition agriculture.* One of the main differences between Russia and Ukraine, where productivity fell, and some of the European countries, such as Hungary and the Czech Republic, where productivity increased, is not so much the scale of the farm operations, but rather the degree to which their management was restructured. In Central Europe, farm enterprise budgets were hardened and on-farm decision-making became independent. Farm managers became primarily concerned with turning a profit and their increased managerial efforts induced sharp shifts in input use, management reforms and efficiency increases. In contrast, large farm restructuring in Russia was far less profound. Russian large farm decision-making still has important features



similar to those of the traditional collective farm structures. Farm leaders are still committed to provide all members with jobs, regardless of cost-efficiency considerations, obliged by tradition and sometimes by government pressure to maintain the social infrastructure of the village.

9. *The continuation of these inefficient practices is linked to the continuation of soft budget constraints* as the government continued to tolerate non-payment of farm debts. In Russia and countries such as Kazakhstan initial attempts at reform involved little real change in patterns of ownership management and control because up to 1998 the former state and collective farms were never subjected to a hard budget constraint. Without the sanction of the threat of bankruptcy there was little incentive for farm managers either to reduce their indebtedness or to reform their internal governance.

10. *Interestingly, in several transition countries "hybrid" farm organizations have emerged that seem to address the need for institutions that allow both better incentives and labour governance and create organizations that can capture scale economies.* For example, Sabates-Wheeler (2002) finds that in Romania the most efficient farm organization for resource-constrained small farmers are "family societies" in which farmers collectively share in the provision of mechanized services. Mathijs and Swinnen (2001) find that "partnerships," small groups of farmers in East Germany that pooled their effort in certain production and marketing tasks outperformed all other forms of farm organization between 1992 and 1997. In Russia the most successful household farms refrain from registering as "private farms," instead choosing to remain connected in some fashion to large farm enterprises. Such producers use their connections to gain access to inputs, marketing channels and other services in an environment where traditional markets, if any, function poorly (O'Brien *et al*, 2000).

11. *Successful institutions of exchange – nascent markets, forms of contracting, etc. – also have many hybrid characteristics.* In fact, some of the most successful transitions have not gone straight from planning to decentralized market-based exchange. Markets are emerging, but doing so quite slowly. China's experience demonstrates not only that, when politically feasible, partial reform by liberalizing some products but not necessarily all and by using a two-tier pricing system (i.e., a system of resource allocation that occurs half through planned transfers and half through the market) can end up creating markets that make the liberalization of the partially reformed sector successful. Such a reform strategy also has a longer run effect of gradually creating a trading class that leads the push to expand the reforms and ultimately eliminate the need for planning.

In Central Europe the re-emergence of vertically integrated supply chains reflects the necessity of private contract enforcement mechanism for credit distribution and input supply in the absence of well functioning public institutions. Other examples of non-traditional institutions in credit and input markets that appear successful in transition include a variety of financial instruments and enforcement institutions, including leasing of equipment, warehouse receipt systems, bank loan guarantees provided by processors to farms, trade credit, etc. Variations in such instruments and institutions reflect differences in commodities, local institutions and economic structure. To be successful these transition innovations have to adapted and flexible to address transition and local characteristics.

Hence, whether considering institutions that create and maintain property rights or those that facilitate exchange, policies should accommodate institutions that are flexible. Flexibility is needed because transition is so uncertain and because there are many constraints that still are binding. Moreover, successful transition may trigger rapid growth which itself will require institutions to adapt quickly. For example, in land markets, the initial focus should be on stimulating short term land leasing, an institution much more adapted to transition circumstances. Later on, long-term leases and land sales can develop. In general, non-traditional and flexible institutions have been more successful.

*12. For any reform strategy to be successful it needs to include some essential ingredients.* In other words, ultimately successful transition requires a complete package of reforms. All countries that are growing steadily a decade or more after their initial reforms have managed (a) to create macro-economic stability, (b) to reform property rights, and (c) to harden budget constraints (d) and to create institutions that facilitate exchange and develop an environment within which contracts can be enforced and new firms can enter.

For example, when rights are not clear, as in Russia, producers have little incentive to farm efficiently or to invest and restructuring is constrained. We see in other places that the creation of strong individual property rights is not sufficient. For example, in Poland in the initial years after reform, farmers had secure rights over their land. But, their inability to access inputs or to sell output prevented them from reaping the gains of specialization and improved labour effort. Both output and productivity growth performed poorly. In general, in nations that created both rights and markets, productivity rises for most of the first decade of reform (at least after the initial transition); in those that they either rights or markets or both were ignored, productivity declines or is stagnant.

13. That said, however, one of the most powerful lessons is that although all of the pieces of the reform package are needed, there is a lot of room for experimentation. Interestingly, if one chooses any two nations that had success, there almost always was variation in sequencing and in the form of the institutions that provided incentives and facilitated exchange. In other words, in our survey of the literature, we cannot find any single optimal transition path. The optimal transition strategy in any given country is one that contains the different parts of the package; the exact nature of the parts and the order in which they were implemented, however, has been different for each nation and takes into account the institutional and political characteristics of the country.

In terms of sequencing, while all of the ingredients are ultimately needed, our paper also has shown that *reform policies do not need to come all at once*. For example, in China and Vietnam, reform without collapse was possible by introducing property rights reform first and gradually implementing policies that liberalized markets and facilitate decentralized exchange. Such sequencing helped transition nations in East Asia grow rapidly in the initial years and steadily since. In CEE, however, after the initial politically led disruptions, the gradual emergence of well-defined property rights, markets and other means of exchanging goods, services and inputs have led to steady productivity growth.

14. *The optimality of different sequences of policies (as well as the government's ability to implement them) almost certainly depends on the structure of the relationships between agriculture and the rest of the economy.* There were important differences between East Asia versus Central Asia and Russia in this respect, which reflect the different stages of development of the agri-food systems in each region of the transition world. While the relationships in the food systems of China and Vietnam were fairly basic, farms in the Central Europe and Russia needed to be integrated into a much more industrialized agro-food supply chain. Under the Soviet system, the tasks of providing inputs to farmers, storage, processing, transport, and road infrastructure were all allocated to different agencies. Warehouses and processing plants were hundreds of miles away. Hence, productivity improvements at the farm level would cause less impact unless simultaneous problems at processing and input supply industries would be addressed. This required more of an encompassing and simultaneous reform approach beyond the farm sector, including the restructuring of food processing companies, retailers and agricultural input suppliers. In terms of administrative feasibility, the much more industrialized nature of the agri-food supply chain (meaning a more complex set of exchanges between a variety of companies) and the fact that the various steps were functionally separated in the central planning system in CEE and CIS

were a severe constraint on optimal sequencing. A more gradual and orchestrated policy sequencing of a gradual reform strategy in the more developed economies in CEE (versus China and Vietnam), would have required more extensive information on the transformation process and the economy. In fact, most observers question the feasibility of plotting out any type of rational, systematically executed reform path ex-ante. As McMillan (1997:232) puts it: "If it were possible to plan the transition it would have been possible to plan the economy."

### Acknowledgements

I am grateful to many colleagues, in particular Scott Rozelle and Karen Macours, with whom I have discussed the issues presented in this paper for many years for their insights and critical comments. I am solely responsible for the views expressed in this paper.

### References

- Benjamin D & Brandt L (1999).** Markets and inequality in rural China: Parallels with the past. *American Economic Review* 89(2):292-295.
- Brandt L, Huang JK & Rozelle S (2002).** Land rights in rural China: Facts, fictions and issues. *China Journal* 47:67-97.
- Cungu A & Swinnen JFM (1999).** Albania's radical agrarian reform. *Economic Development and Cultural Change* 47(3):605-619 (April).
- Gow H & Swinnen JFM (1998).** Agribusiness restructuring, foreign direct investment and hold-up problems in agricultural transition. *European Review of Agricultural Economics* 25(4):331-350.
- Jacoby H, Li G & Rozelle S (2002).** Hazards of expropriation: Tenure insecurity and investment in rural China. *American Economic Review* 92(5):1420-1447.
- Lerman Z & Csaki C (1997).** *Land reform in Ukraine: The first five years*. World Bank Discussion Paper 371, The World Bank: Washington DC.
- Lin JY (1992).** Rural reforms and agricultural growth in China. *American Economic Review* 82(1):34-51.
- Macours K & Swinnen JFM (2000a).** Causes of output decline in economic transition: The case of Central and Eastern European agriculture. *Journal of Comparative Economics* 28(1):172-206.

**Macours K & Swinnen JFM (2000b)**. Impact of reforms and initial conditions on agricultural output and productivity changes in Central and Eastern Europe, the former Soviet Union, and East Asia. *American Journal of Agricultural Economics* 82(5):1149-1155.

**Macours K & Swinnen JFM (2002)**. Patterns of agrarian transition. *Economic Development and Cultural Change* 50(2):265-294.

**Mathijs E & Swinnen JFM (2001)**. Production organization and efficiency during transition: An empirical analysis of East German agriculture. *The Review of Economics and Statistics* 83(1):100-107.

**McMillan J (1997)**. *Markets in transition*. In: Kreps D & Wallis KF (eds), *Advances in economics and econometrics: Theory and applications*, Vol 2. Cambridge, Cambridge University Press, pp 210-239.

**O'Brien DJ, Patsiorkovski VV & Dershem LD (2000)**. *Household capital and the agrarian problem in Russia*. Aldershot: Ashgate.

**Pingali PL & Xuan V-T (1992)**. Vietnam: Decollectivisation and rice productivity growth. *Economic Development and Cultural Change* 40(4):697-718.

**Roland G & Verdier T (1999)**. Transition and the output fall. *Economics of Transition* 7(1):1-28.

**Rozelle S (1996)**. *Gradual reform and institutional development: The keys to success of China's agricultural reforms*. In: McMillan J & Naughton B (eds), *Reforming Asian socialism: The growth of market institutions*. The University of Michigan Press.

**Rozelle S & Swinnen JFM (2004)**. Success and failure of reform: Insights from the transition of Agriculture. *Journal of Economic Literature* 42(2):404-456.

**Sabates-Wheele R (2002)**. Farm strategy, self-selection and productivity: Can small farming groups offer production benefits to farmers in post-socialist Romania?. *World Development* 30(10):1737-1753.

**Sachs J & Woo WT (1994)**. Structural factors in the economic reforms of China, Eastern Europe and the former Soviet Union. *Economic Policy* 18:101-145.

**Sedik DJ, Trueblood MA & Arnade C (1999)**. Corporate farm performance in Russia, 1991-1995: An efficiency analysis. *Journal of Comparative Economics* 27(3):514-533.

**Swinnen JFM & Heinegg A (2002)**. On the political economy of land reform in the former Soviet Union. *Journal of International Development* 14:1019-1031.