East German Agriculture - Changing to a Market Economy

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ABSTRACT. Following the monetary union of the formerly two Germanys, the relative backwardness of East German agriculture has "produced" losses in most of the sectors. But it is also true that since unification, the transformation of the ownership structure has been much faster than in other Central- and Eastern-European countries. The latest data on the Eastern territories shows that **25 percent** of the agricultural land is cultivated by small, individual farmers; **44 percent** by "new type"-cooperatives, and **31 percent** by larger, legal entities. Based on factual data of 1991/92, **small, or family farms,** who work on average 114 hectares produced **46,000 German Mark** gross profit per employee. **Partnerships** - working on average 328 Ha - generated **55,000 DM gross profit** per employee, while bigger companies, **legal entities** - farming on average 1717 Ha - showed only 23,000 DM gross profit per worker - before taxes.

1. The situation prior to the change, briefly

Agricultural production prior to the political change

in Germany was carried out on some 6.2 million hectares(Ha). In 1989, in the final year of the old system, there were 4530 coops in East Germany, working on 5 million hectares, while 500 thousand hectares were cultivated by 580 state owned enterprises (SOEs). Private agriculture - including church estates - was going on in 3560 plants, on 335 thousand hectares, which was only a little more than 5 percent of the total arable land. Besides all this, some 300 thousand hectares have been given to 375 thousand coop--members, employees of SOEs and other small producers.
It is well known that in the former GDR, in framework of the often maniac efforts for "specialization" , plant production and animal breeding cooperatives have been established. They worked in so called "cooperations" with each other. Proof of their wide application is that even in 1989 there were some 1200 such production-cooperations.
In general this had meant that one plant producing unit had signed various agreements with at least three animal breeder or animal producer coop, on an avarage area of 4500 hectares.

2. Effects of the change

Following the monetary union between the formerly "two Germany`s", that is after June 1st 1990, the East German economy had quietly collapsed. The comparison of the two

currencies had drastically shown the differences in productivity between the two sides. The use of labour in plant and animal production - 14 persons per 100 hectares in East Germany - was nearly twice as much than generally used in the Western part of the country. And - in spite of the "intensive cultivation" methods used in the East - the yields per hectare have also lagged 15 - to - 40 percent behind the West. Similar trailing was noted also in the processing and production of various animal products.

The difference between productivities of the two sides following the monetary union was shown most strikingly by the losses "produced" by nearly all sectors of the East German agriculture and agro-industry. The animal breeding cooperatives have been specially hard hit. Of course, their losses were only amplified by the fact that prices of animal products in the Eastern territories were 15 - 20 percent below West-German prices. The savings normally expected from producing in big quantities (scale effect) could not be shown anywhere. In fact, neither the fixed cost nor the general overhead costs of per hectare or per animal were lower than in similar West German plants.

If we want to encapsulate the reasons for this low efficiency, we should deffinitely mention the **enervated agro- and production technology, the unfavourable**

structuring of the various products and **over-employment** as the main reasons for the problems.
It also became evident fairly quickly that East German agriculture produced more than it was necessary and/or what it could sell, which was only emphasized in the new market situation following 1989.

Consequently, production capacities had decreased sharply; by 1992 the land used for agricultural activities has dwindled to **5.3 million hectares** as opposed to the 6.2 million hectares in pre-1990 days.

The number of animals had shown an even more drastical decline; there were **45 percent** fewer cattle, and **60 percent** fewer pigs and sheep in 1992 than in 1990 (Table 1).

The most painful reduction, however, came in employment. While in the autumn of 1989 some 850 thousand people were employed in agriculture, this figure came down to 208 thousand by April 1992. But out of the 208 thousand, only about 174 was registered doing actual agricultural work.

As a result, the former over-employment has changed to the other extreme; dropping to 3,3 persons per hectare, which now is about half of the average number employed in West Germany.

3. The debate on guiding concepts of the transformation

Due to the fundamental differences in the agro-structure of the East and West, unification **had to** be followed by a vigorous debate about the **type** and **size** of the future agricultural units.

Cooperatives - in the traditional communist sense and if looked at under competitive conditions - receive little support from Western (agro-) economists. AEREBOE said in 1928 already that "genuine agricultural cooperation is possible only where members stay together for <u>other</u> reasons, for example out of religious fanatism, etc."

But whatever the reason is for having it, it is certainly <u>against</u> the cooperative that any "common decision" concerning "common assets" will almost always be in conflict with someone`s interest in the cooperative, that is, it will necessary create problems concerning

- **the use of the profits** (distributing it among members vs re-investing it, etc.),
- **efforts to rationalise operations** (improving productivity vs "keeping jobs", etc.), and
- **the "just" division of profits** (based on the percentage of arable land, fixed assets, labour, etc. contributed by each member.

Also, contrary to classical private farming, increase in profits and individual diligence are not always related in a cooperative. Based on "collectivity", less hard-working members are also benefiting from the profits, but, on the other hand, any plus costs must be shared by the hard-working members, too.

This, of course, does not mean that new types of cooperatives should not have a role in the transition period. But it is generally true, that the closer a cooperative gets to private farming, the more attention to it pays to individual interests - for instance through ventures within the coop, economic independece of the various units, etc., - the more successful it is. But then if these segments (individual interests, etc.) are further strengthened, more and more private ownership and farming will be desired anyhow by the more industrious members, with the coop remaining as a mere integrator of activities.

As to the most favourable size and form of organisation of a farm, agro-economists have been quite divided. One group of them favours **family farms** as opposed to other forms of farming, emphasizing is economical aspects. They also say that family farms are generally successful because they are based on each member`s striving for **high individual results, unselfishness, and true family unity,** for everyone is working for his or her own family.

Consequently, they contend that family farms are especially **adoptable** to various market conditions, not to mention their cost-effectiveness, much lower transaction costs, etc. ,as compared to state and other farms that have to pay many workers.

Also, with modern farm technology available today, "family farms" do not necessary mean "small farms." In fact, for example in areas of plant production, a family farm can go as high as **1000 hectares,** or there is no reason why a family cannot have **100-120 cows,** and so on.

The other group of agro-economists claim that the **division of labour** in a farm is more effective than family farming. As an example, they cite an animal production plant that, taking advantage of its vertical integration, organises its employees into independent economic units.

4. Relatively quick restructuring

Like in the other, post communist countries of Eastern Europe, the restructuring of the East-German agriculture is, of course, still going on. But contrary to the others, actual restructuring - with the final goal of privatisation- is much faster in the East German territories. (And this is in spite of the fact that the East German agricultural units

suffer from the same problems as their former "comerades"; from fuzzy ownerships, a relative lack of capital and a lack of farm-business-management capabilities of the new owners.)

You will see some data to support this difference in Table 2.

This Table - based on the latest study in this area - clearly shows that by 1992 some one-third of the former 4500 cooperatives have been transformed legally. The rest - with no legal successor - were liquidated or are under liquidation.

As the restructuring process is still going on, the data, of course, changes almost daily. Still it is important to note, that there is private farming on more than half of the arable land. Many of the former cooperatives have become limited companies and/or have been transformed into some other type of business associations.

Percentage-wise, this means that some 25 percent of arable land is being cultivated by natural persons, 44 percent by the so called "new types" of cooperatives. Individual, full time farmers generally own 135 hectares; partnerships of 2 - 3 farmers work on 400 hectares.

It is clear from these data already that the transformation process brings about a number of ownership-

forms, for both individuals and companies, from part-time or full time private farming to the various forms of cooperations.

5. Model for a viable farm size

Because of the lack of recent experience in the East in this area, models that show examples of viable farm sizes became very important. The following model was developed by the author in early 1992. (As not long ago the first **Summary Report** of the new East German agriculture was published, it should be interesting to compare data of the model with actual figures.)

Based on Balance Sheets studied, a West-German farmer needs 77,000 marks net profit to make a decent living **and** to make the necessary ongoing investments in his farm. On the other hand, in the Eastern part of the country, in addition to the above costs, in most cases starting capital was needed too.

Consequently, with the additional burden of bank debts, there is also a need for a higher income or net profit. This figure - compared to the 77,000 Deutsche marks in the West - was estimated at 92,000 DM for the Eastern farmers.

Table 3 depicts the required input and possible profits

farms in the East. If one considers a profit of **460 D-marks** per hectare, then it is clear that an East-German farmer will have to work twice the area, that is **200 hectares** to make a profit of 92,000 marks.

To illustrate the still existing differences, Table 4 shows the costs and income of farmers in the Western side of the country. While Western farmers have bigger yields, their costs per hectare are also higher. But even so, both his gross margin and profits are significantly greater than his counterpart`s in the East. Due to this, he needs only **100 hectares** to produce the necessary profits for his operation.

But Eastern farmers have some clear advantages, too. For example rents are considerably lower here, and - because of generally larger farm sizes - there are fewer costly assets per hectare, too. Also due to larger sizes, Eastern farmers must utilize their labour maximally, eventually resulting in higher **capital- and labour-productivity** than in the West.
And if it stays that way, then with similar yields and after paying back initial debts, the Eastern farmer can become more competitive than farmers presently in the West.

6. Actual agricultural data from East Germany, 1991-92

The **Summary Report** on East-German agriculture was

based on various financial data - closing Balance Sheets and Farm Accounting figures for the business - of 700 test-units, provided to the Ministry of Agriculture, in Bonn. The following tables (5, 6 and 7) - based on the legal form of the business - should reveal the most characteristic data of the Report.

Table 5 shows the key Balance Sheet data. It can be seen that - on the average - individual farmers worked on 114 hectares, partnerships on 328 hectares and legal entities on 1717 hectares. Based on one hectare, the most buildings and current assets were owned by the legal entities. On the other hand, the value of machines, equipment and other assets owned by them was lower per hectare than that of the other two groups.

As opposed to individual farmers and partnerships, these legal entities (mainly new type cooperatives) produced losses for the year investigated.

Partnerships showed low equity per hectare too, but on the other hand, they amassed more capital per hectare than the other two forms of farming.

Table 6. illustrates the results of these types of businesses. Legal entities showed losses both based on one hectare and/or on per employee. There were little differences between the profits per hectare for the small

or individual farmers and for the farming-partnerships. At the same time, the partnerships were way ahead the small farmers in income per family members.

Considering the fact that profits (and/or losses) by the legal entities are shown after the payment of salaries and wages, comparison with the others can be fair only if this is also reflected in the figures. Following this correction it appears that legal entities had greater gross income per hectare than the others. On the other hand, they fall behind in income and profits if it is based on per employee. In this regard, while small or individual farmers reached **46,000 DM** per (family-member)-employee, and partnerships **55,000 DM** average; legal entities could produce only net **23,000 German Marks** income per employee.

The above data also demonstrates that the bigger and more cumbersome legal entities also have more people which, of course, also means more administration and more expenses for management, salaries, etc.

Quite strikingly, on the average, legal entities employed **3,96** persons per 100 hectare. The same figure was **1,58** for individual farms, and **1,49** for partnerships.

Finally, this is also underlined in Table 7 that shows the profitability of small farms in view of the size of the

farm. But in this case "size" is not based on the available arable land - it is based on **standardized gross income.** According to this, "small" farm is one that has less than 40,000 DM standardized gross income; "medium size" farms earn somewhere 40 - 60,000 DM; while "big farms" show incomes over 100,000 Marks.

Again, the data shows that bigger farms have more of an advantage in **labour-productivity** than in **productivity based on land.**

As big farms had produced **460 DM** profit per hectare - and this is similar to the figure I have shown previously - small and medium size farms generally exceed this figure. But one must also see that if the most important indicator, profit per employee is investigated, then bigger farms show a very strong position.

Although the "Summary Report" did not dwell on this, it is obvious that the various regulations and taxes play a decisive role in these agricultural operations. From this point of view the most advantageous form is clearly the one where the income or profit per person is the highest after taxes have been paid. Some studies in this area have already shown that if we consider all taxes on all the players affected (individual farmers, business partners, coop-members), then the small or individual farmers and the partnerships fare better than bigger legal entities.

Consequently, and this is also obvious, if we must decide on the legal form of the farm-business unit, then the various taxes to be paid must also receive a major consideration in our cash-flow plan.

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Table 1

CHANGE IN LIVESTOCK

	1990	1992	1992 versus 1990
	thousand		%
Cattle	5540	3020	-45,5
of wich Cows	1906	1060	-44,4
Pigs	11088	4258	-61,6
Sheep	2294	827	-63,9

Table 2

FARM STRUCTURE IN 1992.

	Number of farms	Percentage of cultivated land %	Average farm size Ha
Natural persons	17072	24,8	74,2
of wich			
Individual farmers	12647	17,1	69,2
Full time farmers	5565	14,6	134,6
Partnerships	933	7,3	397,7
Legal entities	3039	75,2	1266,4
of wich			
"New types" of cooperatives	1475	43,9	1521,7
Limited Partnerships	1120	20,7	945,4
other Partnerships	444	10,6	1325,8

Table 3

CALCULATION OF FARM PROFIT IN THE EAST
(200 Ha arable land, of wich 180 Ha rented land)

		Grain	Rape-seed	Sugar Beets	Average	Farm
Arable land	Ha	140	30	30	-	200
Yield	dt/Ha	63	32	420	-	-
Price	DM/dt	33	85	10	-	-
		DM / ha				DM Total
Gross Farm Income		2079	2720	4200	2493	498660
- Variable Costs		1100	1220	1800	1223	244600
=Gross Margin		979	1500	2400	1270	254060
Administrative Costs 1)					250	50000
Rent paid 2)					215	43000
Interest					150	30000
Repayment					195	39000
Fixed Costs					810	162000
= Profit					460	92060

1)Insurance, farm taxes, other adm.costs
2) 240 DM per Ha

Table 4

CALCULATION OF FARM PROFIT IN THE WEST
(100 Ha arable land, of wich 50 Ha rented land)

		Grain	Rape-seed	Sugar Beets	Average	Farm
Arable land	Ha	60	15	25	-	100
Yield	dt/Ha	70	35	500	-	-
Price	DM/dt	33	85	10	-	-
		DM / Ha				DM Total
Gross Farm Income		2310	2975	5000	3082	308225
- Variable Costs		1200	1250	2000	1407	140750
=Gross Margin		1110	1725	3000	1675	167475
Administrative Costs 1)					250	25000
Rent paid 2)					300	30000
Depreciation and Financing charges					350	35000
- Fixed Costs					900	90000
= Profit					775	77475

1) Insurance, farm taxes, other adm. costs
2) 240 DM per Ha

Table 5

FINANCIAL DATA

	Individual Farm	Partnership	Legal Entities
Number of farms	532	37	117
Cultivated land	114	328	1717
Assets	5950	4739	5499
Cultivated land	1344	595	81
Buildings	1031	552	1804
Machinery,Equipment	1397	1374	727
Current Assets	1558	1687	1725
Equity	3852	2318	2460
Percentage of Equity	64,70	49,10	44,70
Change in Equity	517	589	-474

Table 6

FARM ACCOUNTING DATA

		Individual Farm	Partnership	Legal Entities
Cultivated Land	(Ha)	114	328	1717
Labour per 100 Ha		1.58	1.49 (0,59)	3.96
Animal Unit per 100 Ha		25,4	24,3	74,3
Percentage of Land rented		86.4	94.8	n.a.
Gross Investment		1607	1619	461
Gross Income	(DM/Ha)	2223	2519	3244
Total Cost	(DM/Ha)	1659	1973	3427
Profit	(DM/Ha)	564	546	-183
Profit	(DM/capita)	43962	93354	-4607
Profit+wages	(DM/Ha)	633	818	901
Profit+wages	(DM/capita)	(45783)	54920	22608

Table 7

THE EFFICIENCY OF INDIVIDUAL FARMS

		Small	Middle	Big
Number of Farms		210	84	103
Cultivated Land	Ha	51	83	255
Labour per 100 Ha		2,72	1,96	1,07
Animal unit per 100 Ha		43,90	35,90	14,60
Percentage of Land rented		77,20	81,20	92,50
Gross Investment	DM/Ha	1920	1806	1223
Gross Income	DM/Ha	2306	2272	2156
Total Cost	DM/Ha	1612	1532	1696
Profit	DM/Ha	694	741	460
Profit	DM/capita	26559	39670	77617

Small = under 40000 DM standardized income
Middle = between 40-60000 DM standardized income
Big = over 100000 DM standardized income