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Elizabeth Clayton

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"Agriculture and Economic Development

in Eastern Europe"

Elizabeth Clayton

Agriculture and Economic Development
in Eastern Europe

Prepared for the Second World Congress for Soviet
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Elizabeth Clayton

Professor of Economics
Department of Economics
University of Missouri-St. Louis
St. Louis, MO 63121 USA

(314) 553-5351

The recent consumer dissatisfaction with food supplies in the Soviet Union and Eastern Europe points out both the success and the failure of the last two decades' agricultural policies. On the successful side, output has risen more than 40 percent between 1960 and 1978, with the highest success in Hungary, where grain production grew by more than 80 percent.¹ On the other side, these achievements took place only with rapidly rising costs, which increased more than 50 percent during the same period.² This resulted in a price-cost squeeze familiar to us all, but the socialist governments uniformly chose to subsidize the agricultural sector and keep the price of food low. Thus consumers wanted more food that could be provided only by increasing the subsidies and their fiscal burden.

This policy dilemma, between increasing food subsidies or food prices, is a familiar predicament that accompanies economic development and its politics. Politically, the problem can be seen as a conflict between the politics of distribution and the politics of production.³ In distribution politics, the interest of urban consumers in low food prices directly opposes the interest of rural workers in increased income. In the Soviet Union and Eastern Europe, subsidies from the state budget have resolved this conflict. Income has risen in rural areas and the income differential between the city and countryside diminished. In Romania for the first time, an average farmer now earns more income than his (or her) urban counterpart.⁴ Still, the price of food in cities is low.

Despite the timeliness of these distributive consequences, it is the politics of production that are of concern here. Agricultural production requires above all an abundant supply of land, and in East Europe this basic material resource is subject to stringent political controls. Most stringent is the control of land in the Soviet Union where land ownership is nationalized, but other Eastern European countries differ only nominally.⁵ In an important sense, the public ownership and control of agricultural land solved a problem in the politics of distribution because it abolished the landowning class and its wealth entitlements and limited its earnings to those from labor. Nevertheless, this new form of ownership created some previously unexplored problems in the politics of production because it abolished the landowner as a decisionmaker and replaced him with a planner.

The decisionmaker in socialist agriculture is a political part of production. The decisions include the additions to capital equipment (and its financing from taxes or retained earnings), the optimum size of farm, the appropriate organization of farm producers and the proper allocation of land between uses, e.g., between corn and cotton, or between cropland and urban housing. These decisions are political because of state ownership. Although all of them have potentially identifiable consequences for the continued growth of agricultural output, only the decisions regarding land use and its evaluation will be discussed here. The methods are new and impinge on many of the other policies proposed for agricultural growth. For example,

David Schoonover has suggested that the best hopes for agricultural growth in the Soviet Union come from more specialization and concentration in production.⁶ If so, implementing these policies will require the more efficient land-use information.

An incentive for a closer examination of land use and an extended search for new methods of valuation is the declining ratio of arable land per capita, i.e., less land must feed more people. In Poland, for example, the arable land per person in 1970 was only 80 percent of its level in 1955.⁷ This does not mean that the land per agricultural worker also was falling, for indeed it has risen in Eastern Europe because new mechanical technology allows a worker to farm more land; Poland is the only exception.⁸ It does mean, however, that agricultural land no longer can be viewed simply as a gift from nature that is limitless or "free," but must be seen as a resource that is increasingly scarce and whose use must be hoarded.

The hoarding, or economizing, of land use is accomplished most clearly by a land price with a mechanism like a market to transfer use and users by a money exchange. Largely for Marxist reasons (often associated with the politics of distribution), this has not been a socialist policy. Even in Poland, where the ownership of agricultural land is ostensibly "private," its transfer is effectively limited to inheritance only and if there is no direct heir the land reverts to collective ownership.⁹ Nevertheless, land may be given a "shadow price" that reflects roughly the price that a market exchange would have

reached if it had happened. Shadow pricing is a common tool in the economic analysis of public projects in market systems. Although one noted practitioner believes that the concept is inappropriate to socialism, his belief seems unjustified because it fails to consider its use there.¹⁰ In effect, a shadow price sums pieces of information already in the system with explicit weights, and its economic environment need not be limited to one kind of exchange or ownership. A similar belief can be found in the USSR, where scholars dispute whether a constructed land value should be entered as an accounting cost to the farm or should only be used in planning decisions.

One step toward a socialist shadow price occurred with the recognition that land of higher quality creates a rent for its user, with the consequence that equal farm workers may receive unequal incomes depending only on the quality of the soil. One scholar in the Ukraine has estimated that the difference in income that was unrelated to work effort has risen as high as 100 percent.¹¹ In resolving this problem, the land rent was not made explicit nor was it attached to the land, but was deducted from the money prices paid to farmers for government purchases. Prices were differentiated by procurement zones, a practice of the Soviet Union and Eastern Europe.¹² The land rent implicit in gross crop revenues is difficult to calculate exactly; too high a rent extraction inadvertently will tax labor effort but too low rent will create a subsidy, and distribution inequities. Over time, the number of prices and zones has proliferated and the differentials have become greater.¹³

Nonetheless, the zonal pricing of crops reflects the politics more of distribution than of production. It gives to farmers no new incentives to use good land for a more valuable crop; since all land seems free, the price of the good land is the same as for all others. More important in a planned economy, the planner sees no differences in land value either and freely shifts productive farmland out of agriculture to factories, urban housing, airports, and hydroelectric dams. Soviet economists have estimated that the use of land in the irrational location of buildings loses one billion rubles annually, at least 0.5 percent of the Net Material Product.¹⁴ In fairness, this problem is not only that of a pro-industry socialist planner. Since good farmland includes public investments (roads and such) that are valuable in industry and housing, too, the best farmland often is converted to urban use in private markets when the worst land with new roads would have been equally useful and spared agricultural production as well.¹⁵

Treating land as "free" fails to acknowledge its value and scarcity as a factor of production. The omission is by no means rare; e.g., input-output tables include only the factors of labor and capital. The omission of land is most misleading in the analysis of agriculture where land looms so large and irreplaceable an input. At the macroeconomic level, some shadow prices have been suggested to account for land's imputed share of income. Abram Bergson, in estimating the Soviet national income at factor cost, entered land at the same share of farm earnings as the United States in 1946.¹⁶ More recently, some Soviet

authors have calculated a similar number and their result is surprisingly close to that of Bergson. Bergson estimated that 32 percent of farm earnings could be attributed to land in the Soviet Union; Onishchenko estimated that the share in the Ukraine was 27 percent.¹⁷ These aggregate estimates are useful in macroeconomic analysis, but do not assist at all the evaluations to be made at the microeconomic level.

Establishing microeconomic land values is an extraordinary undertaking. The number of uses and users (actual and potential) is surely infinite and the characteristics that make land valuable are undoubtedly numerous. Nevertheless, the task was necessary if only to study the implied value in current decisions and even if some simplifications were introduced. In all of Eastern Europe, the first step was an inventory and registration of land users and their holdings.¹⁸ Ordinarily this work was directed by a faculty or institute of geography and is analogous to the land title registration system that underlies all private ownership. The measurement and legal description of land is highly regarded as indispensable to development in any economic system.¹⁹ Aerial surveys have provided some considerable technical assistance in this process. Urban and industrial zones were treated separately.

In socialist systems, agricultural land registration, and cadastral survey, is accompanied by an analysis of soil and climate. The taxonomy of agricultural zones is complex, as an example from the Soviet cadastral survey will illustrate.²⁰ First, the agricultural land is assigned to a "belt," based on temperature and described as cold, temperate, or warm. Then it is

assigned to one of fourteen "zones" based on the balance of temperature and water, and the prevailing soil type, such as the "forest steppe" zone. From this are defined 44 "provinces," with sub-zones based on microclimate (e.g., for early, middle, or late maturing crops) and sub-provinces based on relief (level, valley, mountainous). (Five mountainous "oblasts" are a separate category.) This taxonomy established the agricultural zone-pricing scheme mentioned above and is now more or less complete.

This complex taxonomy has been synthesized into a technical value measured in units (ball), usually with a range of zero to 100 but occasionally with an open range. Although a central administration instruction imposes some common requirements, each administrative sub-unit devises its own qualitative scale and they vary widely.²¹ The ball measures often are used in research projects that require a land quality variable, e.g., in an analysis of conditions for establishing an industrial complex.²² Nevertheless, they have not been used as a land price in money terms.

The money valuation of Soviet land relies not on this vast technical study and the cadastral taxonomy but on variants of yield, or output per hectare valued at the prevailing price. Decisions arise as to "which crops," "whose yield," and "what price." Again, the results show considerable local diversity. Most administrative units choose their major crop to value their land: food grain for people (a "wheat" unit) or feed grain for animals (an "oat" unit). Although some value land by the yield of an experimental farm or hybrid seed producer, most use the

yield of an average producer as a numeraire. The price to value the yield (and to compare wheat units with oats) presents a difficult choice because all agricultural prices reflect inversely the rent of the land that they are to value.

This circularity has encouraged a number of proposals for alternate land values, and three schools of thought will show their diversity.²³ One school would value land by its revenues per hectare, but this procedure draws the same criticism as before, because revenues depend on the zonal prices. A second school would value land by its cost per hectare for a given yield, with the justification that land's value is its ability to save other inputs, especially labor. Since "cost" in the Soviet economy has several definitions, this measure has several complicated versions; there also is disagreement as to whether land itself is a cost. Finally, some propose that agricultural land should be valued by the cost of its replacement, as in the clearing of forest, the restoration of open mines, and the like.

This last, the replacement concept of agricultural land value, has the virtues of simplicity and reason. It was first proposed by G. P. Wibberley in the United Kingdom and later accepted in Eastern Europe.²⁴ Wibberley, concerned about the vanishing of Britain's food supply as cities sprawled over the best agricultural land, argued that the market and the city planners valued this land inappropriately and proposed a new land value based on the concept of "food replacement," a simplified derived demand.

Food replacement, Wibberley argued, could come from several sources, each giving a different value to the land lost to urban sprawl. First, the land itself could be replaced, and Wibberley calculated value from the cost of reclaiming land from the sea, from forests, from abandoned mineral works (gravel pits and open mines). The third school listed above uses such a measure for valuing the land lost to large water projects. Since all new lands are at the extensive margin of production, Wibberley calculated as well the food replacement cost of more intensive use of existing farmland. G. Szabo has used such a concept in his valuation of farmland in Hungary by fertilizer cost.²⁵ Finally, Wibberley calculated the food replacement cost of new producers on heretofore uncounted land: householders in domestic gardens and imported food from abroad. Corresponding equivalents from Eastern Europe have not been published but surely exist implicitly.

While land withdrawn from agricultural use may be given a shadow price, its purchase and sale is a separable modification and not universally accepted in Eastern Europe.²⁶ Probably the first actually to require payment for the land withdrawn from agricultural use was the German Democratic Republic in January 1968. There the average price was 5000 marks per hectare (about 2.5 acres), and it was discounted by 25 percent if the new user built roads or other public facilities. In Poland, the average price for arable land is 15,000 zlotys and it is differentiated by fertility class. Romania has no land price but the government

imposes a "fine" or 5,000-50,000 lei (depending on land quality) if anyone diminishes agricultural land in quantity or quality!

Although these price schemes influence the allocation of agricultural land between sectors, they do not necessarily guide planning within agriculture. Some Eastern European countries have introduced a direct land rent for this purpose. In the German Democratic Republic, the maximum land rent is 300 marks per hectare per year; the minimum rent is actually a subsidy up to 150 marks per hectare per year. In Poland, there is a land tax resembling a rent that depends on soil fertility (6 classes) and land use. Other East European countries charge only an indirect land rent. Czechoslovakia imposes an income tax on production value that exceeds 1500 kroner per hectare. Bulgaria also imposes an income tax. The contribution to allocative efficiency of these user charges is probably minuscule since a choice of land use in response to price often is not possible.

In the broader context of a whole economy, agricultural land has value not only for fertility and other natural characteristics but for its location. Unfortunately, none of these shadow prices include a location charge. Since commercial production requires transportation, an identical product produced in two locations will differ in value when one requires less transport than the other. This difference in product price can be attributed to the value of location in a land price.²⁷

As the specialization and concentration of production increase the output of Soviet agriculture, a shadow price for land

location becomes more important. Although the data from the Soviet cadastral survey are not available (and would be unwieldy if they were), they were roughly approximated for this study. Research in several economies worldwide shows that the effect of location on land price is substantial, but has considerable stability.²⁸ From this observation, a shadow price for Soviet land by republics and economic raions was constructed. Assuming that transport is the source of location value, it was defined as a function of population density, following the widely used sociological maxim that interaction (i.e., transport) is proportional to density.²⁹ This constructed price then was compared to one derived in the Soviet Union from land clearance costs and revenues.³⁰ The two price series were found to be highly correlated, preserving a lexicographic ordering for the most part. (For reference, they are shown in a table at the end of the paper.)

The correlation between the two price series constructed from very different characteristics indicates some macroeconomic and success in valuing agricultural/land including an implicit location charge. Unfortunately, microeconomic success cannot be similarly documented until the data are more refined. A decade ago, an American geographer wrote of the Soviet Union: "Wanted: An Effective Land Use Policy...."³¹ This need remains indispensable for expanding the East European food supply today. The scholarly work there on rational land prices has been impressive. It remains to be seen if it has contributed to the nearly-intractable problems of the politics of production.

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Table 1: Simulated prices for agricultural land, Soviet Union, Republics and Economic Raions of the RFSFR, 1970.

	Method 1	Method 2
	rubles per hectare	
USSR	800	1,300
RFSFR		
Northwest	450	850
Central	500	1,600
Volga Vyatskii	450	1,150
Central Blackearth	750	1,450
Povolzh'ya	450	850
North Caucasus	950	1,300
Urals	450	750
East Siberia	600	450
West Siberia	300	300
Far East	300	350
Ukraine	1,600	2,250
Belorussia	1,000	1,950
Kazakhstan	150	200
Georgia	1,200	2,400
Azerbaijan	900	1,500
Lithuania	1,000	2,200
Moldavia	2,500	3,150
Latvia	900	1,850
Kirghiz	400	650
Tadjikistan	900	1,050
Armenia	1,400	2,200
Turkmenistan	150	200
Estonia	1,200	1,800

Sources: Method 1: M.M. Loiter, Prirodnye resursy i effektivnost' kapital'nykh vlozhenii, Izdat Nauka, Moscow, 1974, p. 162-3.
Method 2: Narodnoe Khoziaistvo v USSR 1970, Moscow, 1971 and calculations by author.