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Agriculture in the Czech Lands and Slovakia: Some Problems, Policy Options and the Potential for Benefit-Cost Evaluation

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AGRICULTURE IN THE CZECH LANDS AND SLOVAKIA: SOME PROBLEMS, POLICY OPTIONS AND THE POTENTIAL FOR BENEFIT-COST EVALUATION

Analyses of proposed policy changes often include three phases. First, the effect on the market is shown. Then the groups that gain and loose are identified. Finally, applied economists often quantify the benefits and costs, using methods such as supply and demand estimates from statistical studies of the market. Quantification draws criticism sometimes, because this process is imprecise. The criticism may take the form of "this is not a problem" or "it's not possible to answer these questions". However, decisions made with imprecise information are probably better than decisions that are avoided because there is no information or decisions that are made in spite of the lack of information.

Benefit-cost studies are beginning to appear in the analyses of the agricultural policy problems of Eastern European countries. But there is still a lot to do. Below I review a few problems in the agricultural sectors in Czech Lands and Slovakia. In each case, I show how a proposed policy would affect the market and identify the benefits and costs. Then I explain how benefits might be quantified in further research. The problems considered below are the association agreements with the European Community in the trade area, the food security problem in the domestic policy area, and the employment policy of agricultural firms in the transition area.

TRADE

Many analysts expect heightened competition in world agricultural markets due to developments in Central and East Europe. There are several reasons for this. First, domestic demand has been falling with elimination of food subsidies and declining real incomes (T a n g e r m a n n 1993). Second, low wages give Eastern Europe an advantage in some labor intensive products, like livestock and fruits and vegetables (M u n k 1992). Third, livestock feed productivity may improve under capitalism, due to more economic slaughter ages, protein in feed rations and more extensive use of pharmaceuticals (J o h n s o n 1992).

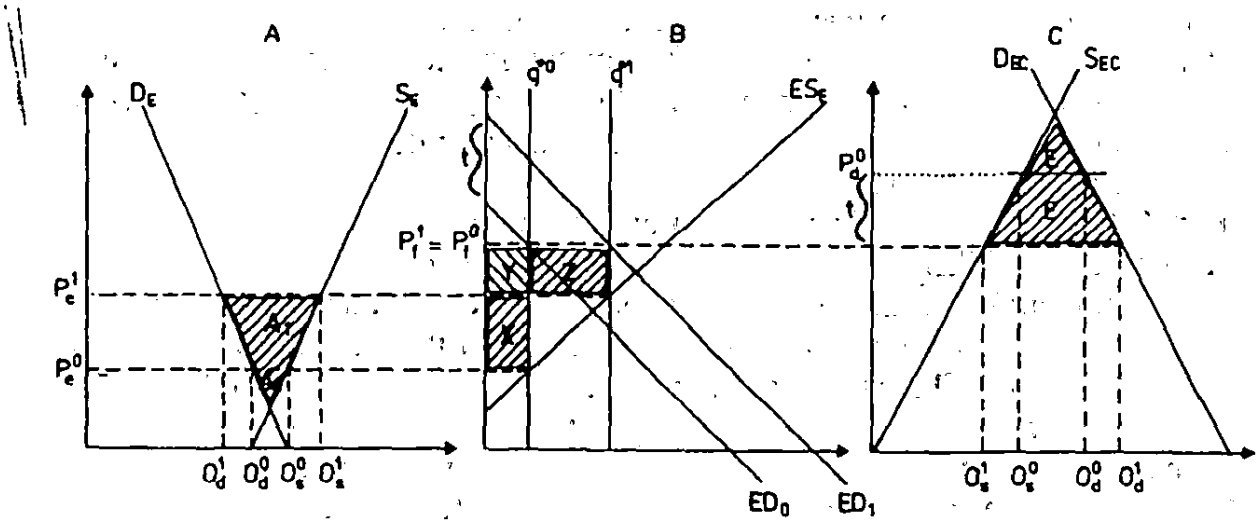
The countries of East Europe could benefit from an open trading environment due to their competitive advantage. Indeed, K a r p and S t e p h a n a u (1993) have advocated a free trade policy for these countries, with domestic intervention limited to a capital subsidy.

Yet, the Association agreements with the EC have been the dominant feature of trade policy for East European countries. For example, Czech Republic, Hungary, and Poland signed an agreement with the European Community that will gradually reduce the variable levy for beef, pork and butter to 50 % of the duty paid by other countries by 1997 (USDA). However, market acces will still be limited to somewhere between 2 % and 5 % of domestic supply, depending on the commodity and the East European country.

Ananalysis of the effects of a joint tarrif reduction and quota increase is shown in fig. 1.

Initially, the quota (q^{*0}) defines the level of exports from an Eastern country. The merchants who import into the EC hold the rights to the quota. They have excess demand schedule, ED_0, which defines the amount they are willing to pay for a given quantity when the import duty, t, must be paid. Then importers pay the price, P_e^0, while the domestic market price in the EC is P_d^0, which includes the import duty. Meanwhile, the domestic price in the Eastern country is P_e^0.

The Eastern merchants with quota privileges receive a benefit equal to the quota amount multiplied by the difference between the import market sell price and the



1. The effects of a joint quota increase and tariff reduction – Vplyv súčasného zvýšenia kvóty a zníženia prirážky

x axis: quantity – os x: množstvo, y axis: price – os y: cena

A = An East European country – Východoeurópska krajina
B = European trade – európsky obchod
C = EC – ES
D_E = demand, Eastern country – dopyt, východná krajina
D_{EC} = demand, EC – dopyt, ES
S_E = supply, Eastern country – ponuka, východná krajina
S_{EC} = supply, EC – ponuka, ES
ES_E = excess supply, Eastern country – prebytok ponuky, východná krajina
ED_0 = excess demand – prebytok dopytu
Q_d = quantity, demand – množstvo, ponuka
Q_s = quantity, supply – množstvo, dopyt
q_i = quantity, quota – množstvo, kvóta
P_e = price, in Eastearn country – cena, vo východnej krajine
P_f = price, on export market – cena, na vývoznom trhu
P_d = price, in EC – cena, v ES

Eastern market buy price; area $x + y$. The benefit of existing trade to the Eastern country is A_0, which represents the excess or producers' gain over consumers' losses from opening the market to trade. The benefit in the Common market is given by area E_0, which represents the excess of consumers' gains over producers' losses from allowing imports.

Under the agreement, trade shifts up to the new quota, q^{*1}. Also, import demand shifts upward, to ED_1, because the tariff is removed. The import price can remain unchanged ($P_f = P_f$) when the tariff reduction is the same size as the quota increase. But the domestic price still increases in the Eastern market, to P_e^1, due to the quota increase, and falls to P_f^1 in the European Community due to the tariff reduction. Corresponding quota rectangle and trade triangles $y + z$, $A_0 + A_1$, and $E_0 + E_1$, define new benefits to Eastern merchants, the Eastern country and the EC, respectively. Consequently, the welfare changes associated with the tradeagreement are :

A_1 for the Eastern country,
$y + z - x$ for the merchants with quotas, and
E_1 for the European Community.

T a n g e r m a n n calculates the benefit from the association agreement as "the quantity exported to the EC times the difference between the usual levy and the preferential levy under the association agreement". This calculation approximates the quota rent, area $y + x$, except that no allowance has been made for the price adjustments in the trading countries. This approximate calculation would exactly equal the merchants' rent from the quota, area $y + z$, if the Eastern country sold public surpluses instead of allowing the price to rise, if the EC defended the same intervention price before and after the agreement, and if the initial quota was very small. In any event, it is estimated that the total value of preference may reach 22 % of total Czech and Slovak agricultural exports to the EC, or about 40 mill ECU, by the time the agreement is fully operational in 1996.

While these calculations provide a useful first approximation, further study is still in order. First, calculations should include econometrically estimated adjustments in domestic supply and demand in the Eastern country and the European Community. Second, the benefits should be split between Czech Lands and Slovakia. Trade displacement effects should be taken into account. Finally, the trade agreement approach should be compared to free trade.

FOOD SECURITY

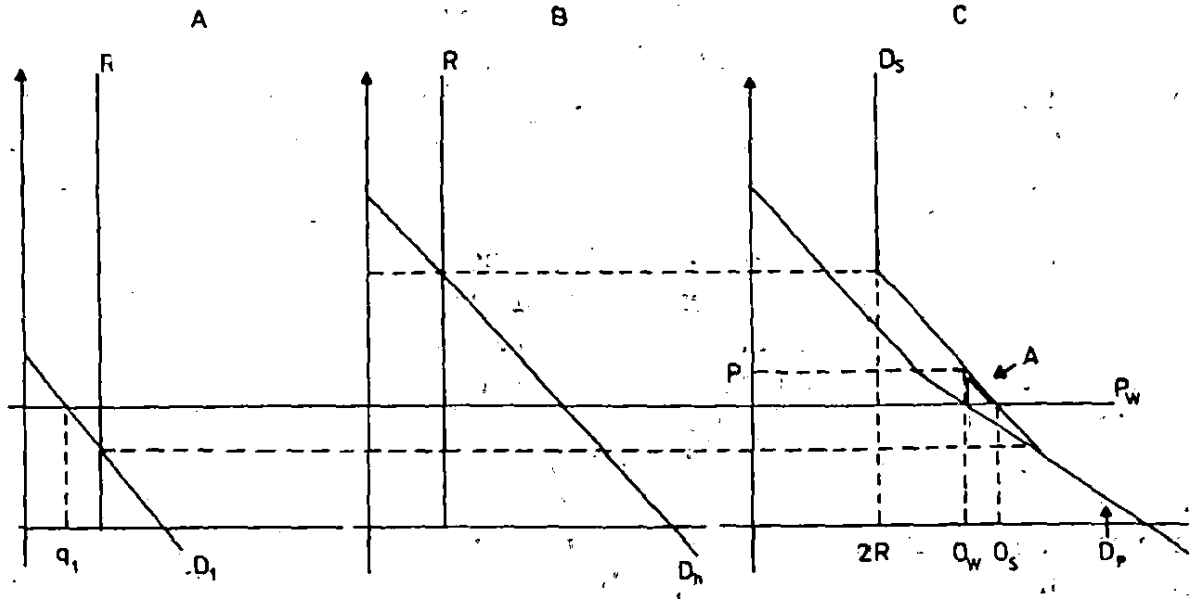
Some calculations put per capita incomes in Eastern Europe near levels in some Latin American countries (S u m m e r s 1992). The distribution of individual incomes about the average is not as pronounced in the countries of Eastern Europe, compared to Western countries. However, there is still considerable dispersion (N e w b e r r y 1992). Thus, the design of safety net programs, including food in programs for the needy, may deserve secrutiny.

Food security refers to an individual's ability to maintain a minimum consumption level that is consistent with basic nutrition. Some promote general security through

economic development or income supplement programs (T w e e t e n et al. 1992). However, targeted food distribution is still a possible policy when all people cannot maintain a basic level of food consumption through market participation.

S c a n d i z z o and K n u d s e n (1980) studied the estimation of benefits for a food distribution policy. Consider fig. 2, which illustrates their approach. There is a low income consumer with demand curve D_L, a high income consumer with demand curve D_h, and a market demand, D_p. Given the market price, P_w, the poor consumer's consumption, q_L, is less than a minimum food requirement, R, that is consistent with minimum nutrition standards.

Now suppose the government raises the consumption of the poor consumer up to R without more expenses for the poor consumer. However, the rich consumer must still buy from the open market. Then the market demand curve is the sum of the vertical line, R, and the demand curve of the rich consumer, D_h, over most price ranges. However, the goverment also supplements the rich consumer's prices to



2. Society's willingness to pay for food distribution – Ochota spoločnosti platiť za distribúciu potravín

x axis: quantity – os x: množstvo, y axis: price – os y: cena

A = Poor consumer – Chudobný spotrebiteľ
B = Rich consumer – Bohatý spotrebiteľ
C = Market demand – Dopyt na trhu
R = minimum food requirement – minimálna spotreba potravín
D_l = demand, poor consumer – dopyt, chudobný spotrebiteľ
D_h = demand, rich consumers – dopyt, bohatý spotrebiteľ
D_p = demand by the private market – dopyt súkromného trhu
D_s = demand, social – dopyt spoločnosti
P_w = world price – svetová cena
Q_s = social demand at world price – spoločenský dopyt pri svetovej cene
A = society's gain from distribution – zisk spoločnosti z distribúcie potravín

maintain the minimum requirement at extremely high prices. Thus, social demand is given by the vertical line at $2R$. Neither the poor nor the rich need assistance at very low prices, so the social demand and the private demand are coincident.

The demand curve, D_S, is a social demand curve in the sense that it corrects for the market failure associated with the inability of the poor customer to purchase minimal food. The area under this curve indicates society's willingness to pay for food assistance programs.

To illustrate, suppose that the world price is P_W and consumption based on market demand is Q_W initially. Society is willing to pay amount P^* for the last unit of consumption and it actually pays the world price, so the net gain from the incremental unit is $P^* - P_W$. Society should expand the food assistance program until the social value of the incremental unit, given by the height of the social demand curve, equals the marginal cost of the commodity, which is given by the world price. Hence, the socially desired consumption level, Q_S, is given by the intersection of the social demand curve and the world price. In turn, this leads to the area A, as the social benefit from expanding consumption up to the socially acceptable level.

Benefit estimates for Czech Lands or Slovakia would require knowledge of the country's income distribution, an estimate of an Engle curve that relates calorie intake to income level, an estimate of minimum calorie standards, and some estimates of market price response. Thus, some survey data may be required for Engle curve estimation. Otherwise, the required information should be available from government agencies and the results of agricultural demand studies.

S c a n d i z z o and K n u d s o n (1980) did not address the question of means. In the event that food distribution programs are in order, it might be sensible to reorient some food markets away from exports. Perhaps import duties could be collected and used to finance food distribution programs for the needy.

TRANSITION

Š v e j n a r (1992) defines the transition problem of the state-owned enterprises. Overemployment resulted in the old system, due to a combination of soft budget constraints and subsidies, unpredictable input flows and penalties for not achieving targets. These factors made it rational to hoerd labor. Under the emerging market system, managers have experienced hard budget constraints, and the removal of production quotas and subsidies. Reduced employment levels are the result of profit-minded calculations.

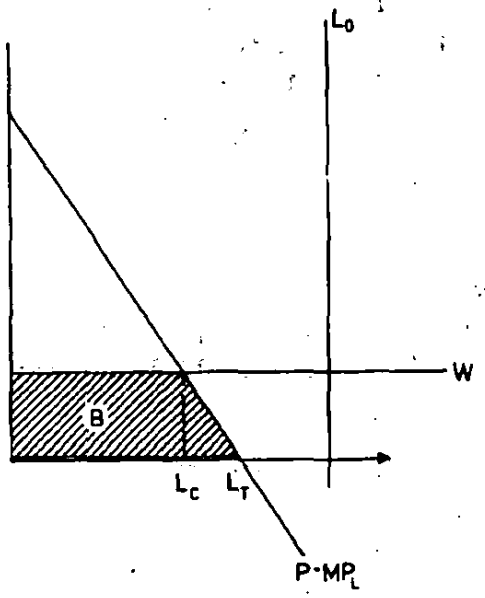
These tendencies may be especially pronounced in the agricultural sector. For instance, East Germany is an example where much of the labor transition in East Germany may have already occured, due to employment opportunities in the manufacturing sector of unified Germany and acces to capital for new enterprises that employ displaced workers. The current employment level in East German agriculture is about one quarter of the level that it was in 1989 (T a n g e r m a n n 1993).

Unfortunately, the situation for investment in new enterprises is not so favorable in other Eastern countries, due to poorly defined property rights, high real interest

rates, and restrictions on the use of profits made by foreign firms. Yet the prospects for job growth in the manufacturing sector range from moderately good in Czech Lands to fair in Slovakia.

The employment situation is depicted in fig. 3. The initial employment is given by L_0. The demand for labor is given by the value of the marginal product, which in turn is the product of the output price, P, and the marginal product of labor, MP_L. The wage is given by the horizontal line, W, because it is still administratively set in Eastern countries. The competitive firm would employ L_c, where wage and the value of the marginal product are equal. The value of the marginal product curve has shifted leftward in recent years, owing to price reductions and subsidy elimination during the transition period, and the loss of an option value associated with surpluss labor. Thus, market decisions would result in the unemployment level $L_0 - L_c$.

However, the existing wage does not reflect the opportunity cost of labor. Švejnar (1992) advocates, retaining labor up to the point where the social cost of labor equals the value of the marginal product in order to offset the large labor displace-



3. Labour supply and demand during transition – Ponuka a dopyt po pracovných silách počas prechodného obdobia

x axis: labor – os x: pracovné sily, y axis: value of marginal product, wage – os y: hodnota marginálneho produktu, mzda

Lo = initial labor supply – pôvodná ponuka pracovných sil
Lc = labor demand by competitive firms – dopyt konkurenčných firiem po pracovných silách
LT = labor demand with employment expansion – dopyt po pracovných silách pri rozvoji zamestnanosti
W = wage – mzda
P = product price – cena výrobku
MPL = marginal product of labor – marginálny produkt práce
B = society's gain from employment expansion – zisk spoločnosti z rozvoja zamestnanosti

ments. In the extreme case where the workers would be unemployed for the unforeseevable future, their opportunity cost is zero. Then the firm should employ workers until the value of the marginal product is also zero at employment level L_T in fig. 3.

The benefit of expanding employment to the point where its value is its social cost is given by the area B in fig. 3. This area represents the contribution to national product that would be made by otherwise unemployed workers.

Measurement of this benefit might be based on estimates of production functions for the agricultural sector and calculations based on existing prices, wages and marginal products. Also, the assumption of permanent unemployment used above was extreme. Instead, the extent and duration of unemployment must be estimated. The survey approach used by B a l e (1976) or the econometric approach used by W e i d m a n (1986) are alternatives.

CONCLUSION

The studies that were reviewed offer systematic analyses of some important agricultural problems in the Czech Lands and Slovakia. Some policies, such as the EC agreements, are being implemented. Others may deserve future attention.

Benefit estimates help decisionmakers assess the importance of policy changes. For example, early estimates of benefits from the EC association agreements to combined Czech Lands and Slovakia seem small. However, the assessments could change for separate countries or favorable developments in future agreements. Similar assessments could be developed for employment supplement or food assistance programs. The conceptual foundations have been developed, and empirical studies of some agricultural markets in Czech Lands and Slovakia have been undertaken. The conditions are right for further benefit evaluation.

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