■ by William Edwards and Dennis Judd

In short

Playing the market economy game in Russia and Ukraine

A picture is worth a thousand words. We have all heard this many times, but when the words must be translated into another language, a thousand may be a conservative estimate.

We were faced with a challenge: how to put together a lecture on the workings of a market economy to present to farm managers in Russia and Ukraine in less than three weeks, and with limited resources for translating. From talking with groups of visiting Russian scientists, we knew that one of the first questions we would face would be "Who determines what prices will be?"

We decided to demonstrate it rather than talk about it. We created a game which incorporated many principles of a market economy and actively involved all members of the audience. Our exercise employed the techniques of "experimental economics," which is becoming popular as a teaching tool in many economic principles classes in the United States. Two constraints guided our plans: to minimize the amount of material to be translated, and to avoid depending on computers or other electronic media to carry out the exercise.

Our economy consisted of a one-product food chain with several intermediaries. The end product was bread, which every player had to acquire in order to survive. The chart on page 35 shows the players in the game and the products they exchanged. The various roles were randomly assigned to members of the audience. Each participant was identified by a color coded name tag with a player symbol.

We used cards made from stiff colored paper to represent currency and the products exchanged. The cards included symbols of the products or resources with which each player started the game. Farmers received land, fertilizer suppliers received fertilizer, and bankers received money. Each player received an initial supply of currency. Charts that accompany this article explain the materials and the rules for trading resources.

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The audience consisted mostly of managers, department heads, and accountants from local collective and state farms, a few private farmers, and some faculty members from the agricultural institutes that hosted the seminars. We made presentations at Stavropol in southwestern Russia and Kahovka in southern Ukraine. The exercise was repeated eight times at each location, with about 20 players each time.

Our first experience produced complete chaos! We didn't know if we had overestimated the participants' ability to grasp the workings of even a simple market economy, if the interpretation had been inaccurate, or if some unknown cultural barrier was creating a communication gap. But at least we had action. Fortunately, each cycle and each group produced more predictable results. As our interpreter be-

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gan to understand the process, we found that we had to do very little explanation ourselves. We were also fortunate in Stavropol to have a faculty member who enjoyed the experience so much that he stayed through all the repetitions.

One of our fears was that participants who were accustomed to a very formal, top-down style of education would not readily involve themselves in a "game," but we were wrong. In each group we had several initiators who got the action going. Most of the other players eventually followed, although there were always one or two who sat in their chairs and refused to participate. Symbolically, they were declared "dead" after they failed to obtain the necessary loaf of bread by the end of the exercise.

After the first round was finished we asked the players to tell the group the prices at which they had exchanged fertilizer, wheat, flour, and bread. The range was quite wide. We did the same after the second round and found the range had narrowed and prices were beginning to converge. Information was helping to "determine" prices.

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Some players were extremely aggressive. Buying and hoarding bread was an especially popular strategy. One player who had never heard the term "leveraged buy-out" wanted to borrow enough money from the bank to purchase the supplies of the other two fertilizer dealers. One particularly aggressive player managed to acquire half of the total supply of currency after just two production cycles. To accommodate the "new rich" we created a Mercedes-Benz card and auctioned it off to the highest bidder at the end.

After the fun was over the real challenge began—how to guide the discussion about what had just occurred to illustrate the workings of a

Rules of the market economy

1. All prices are determined by negotiation among the players, including the interest rate on loans. They do not need to be the same for everyone.

   Prices are negotiated for:
   - fertilizer
   - loans (interest rate)
   - wheat
   - bread

2. Each unit of land produces one unit of wheat. Farms may buy fertilizer from a fertilizer dealer, but it is not required. Each unit of fertilizer produces one additional unit of wheat.

3. Farms exchange fertilizer and land cards for wheat, which is then sold to the flour mills.

4. Flour mills exchange each unit of wheat for one unit of flour, which is then sold to the bakeries.

5. Bakeries exchange each unit of flour for one unit of bread, which can then be sold to any of the other players.

6. All players must acquire at least one unit of bread by the end of the exercise or they die. Collect one bread card from each player at the end.

7. For the second cycle pass out new land cards to the farmers and fertilizer cards to the fertilizer dealers, and repeat the exercise. Make sure all bank loans have been repaid, if possible, then let everyone keep their reserves of bread and cash.

Discussion questions for market economy exercise

How were transaction prices set?

Was there a lot of variation?

Was there enough bread to feed everyone?

Did some people try to hoard bread?

Who increased their money holdings? Who decreased their money holdings? Why?

Did it pay to buy fertilizer? How will fertilizer prices adjust?

Were all loans repaid? If not, why not?

Will players who did not repay their loans be able to borrow more money the next year?

What effect did having price information from the first year have on prices the second year?

What would prices have been if the initial supply of money had been double what it was?

How would prices have been affected if there had been only one flour mill? One bakery? One fertilizer dealer? One bank?

Market economy exercise for 25 players

Players	Color	No.	Initial Endowment	Economic Activities
Bank	green	2	$25	Loan money to anyone
Fertilizer supplier	blue	3	10 units of fertilizer	Sell fertilizer to farm
Farm	yellow	10	1 land unit $5	Buy fertilizer from supplier Borrow money from bank Produce wheat Sell wheat to flour mill
Flour mill	white	5	$10	Buy wheat from farm Transform wheat to flour Sell flour to bakery Borrow money from bank
Bakery	brown	5	$10	Buy flour from flour mill Bake bread from flour Sell bread to consumer Borrow money from bank
Consumer	all	25	none	Buy bread from bakery

Cards	Color	Number
Money	green	200
Fertilizer	blue	30
Wheat	yellow	40
Flour	white	40
Bread	brown	40

market economy. A sample of the discussion questions we used is shown in the accompanying box. By asking key questions about the behavior everyone had just observed, we found that we could draw most of the points we wanted to make from the audience themselves. Somehow prices were determined, without any direction from us, the government, or any other authority. To summarize, we pointed out several key conditions that must be present for a market economy to function correctly: competition at all levels, access to capital, and free flow of price information.

We also discussed the effect that the quantity of money that the players started with, and their access to credit, had on price levels. The question of hoarding was more difficult, but one with which the players had considerable experience. Some players refused to sell bread at any price, evidently expecting a higher price in the following round. This was a good example of how an inflation psychology can disrupt markets.

Reaction from the audiences was excellent. We gave them a welcome break from monotonous lectures. We provided an outlet for their latent capitalistic instincts. And we allowed them to observe and act out the principles of a market economy for themselves.