

Teaching Plan

Title	Free entry and exit
Instructional Objectives	➤ To illustrate how free entry and exit lead to equal profits across markets in the long run.
Keywords and Concepts Illustrated	<ul style="list-style-type: none"> ➤ Long run ➤ Free entry and exit
Needed Time	➤ A double-lesson period, 80 minutes in total

Sessions	Details	Time Spent
Activity/ Announcement	<ol style="list-style-type: none"> 1. T: If you were a farmer, and you could grow anything in your farm, what would you like to grow for sale? (Ask some students to answer.) Of course, you will choose a crop which can give you the highest profit. Then what factors determine your profit from growing and selling a crop? After the game you are going to play, you will know what factors determine your production profit in a market. 2. T: Now, each of you is a farmer in this economy, and each year you must decide what to plant. You have four choices of crop you can grow for sale. They are corn, wheat, rice and soybeans. Each crop has different production cost. The production cost is eight dollars per unit of corn; nine dollars per unit of wheat; ten dollars per unit of rice and eleven dollars per unit of soybean. 3. Teacher writes down the four demand functions of the crops on board. The functions can be found in Table 1. The set of market demand functions to be used depends on the total number of students in the lesson. After all students have arrived, but before the experiment begins, it is necessary to count the no. of students to choose the set of demand functions of the four crops. Each inverse demand function is assumed to be linear with slope equal to negative one. The intercepts are chosen so that each one is greater than or equal to the unit production cost in each market, and the sum of the differences between the intercepts and their respective unit production costs equals the number of participants. This ensures that in long-run equilibrium there are zero profits in each market. 	10 mins

	<p>4. T: Here are the market demands of the four crops on board. (Stick a large and highly visible sign in each corner of the classroom with the crop name and its production cost, e.g., ‘Corn’ ‘unit production cost: 8’.) T: The four corners of the classroom are the four markets. Please make your choice by physically going to the market of the crop you wish to plant later. The amount of the crop you supply is always one unit. So, the quantity supplied of each crop equals to the no. of farmers in that market. I will give you thirty seconds to do so. Let’s see who can earn the highest profit.</p> <p>5. When students are firstly asked to select a market, there may be some confusion, because they have no grounds on which to base their initial crop selection. If need be, teacher can instruct students to pick a market at random. After everyone has selected a market, teacher can announce price and profit for each market based on the demand functions students are facing. Record these numbers on the market charts shown in Table 2.</p> <p>6. T: After knowing the price of the crop you planted and sold, you can now calculate your own profit which is equal to the price minus the unit production cost in the market you selected. I am now distributing a Farmer Profit Chart (shown in Table 3) to each of you. Please record your own outcome on this chart after each round.</p> <p>7. After students have recorded their individual profits from round 1, repeat the whole process described above by asking students to select a crop to produce in round 2. It is important to give students enough time to count the farmers in the different markets and analyze the market charts so they can make informed market selections. Continue the rounds until the unit profit recorded in Market Chart for four markets are all zero. The process will be repeated up to eight times.</p> <p>8. Discussion:</p> <p>8.1. How did you make your decision on the selection of crop you want to grow and sell initially?</p> <p>8.2. After several rounds of the game, how did you make the decision? What factors did you consider? What</p>	<p>10 mins</p> <p>30 mins</p> <p>30 mins</p>
--	--	--

	<p>factors did affect your profits? (Besides production cost, the number of farmers in a market is the main factor affecting the unit price and thus the profit of a farmer.)</p> <p>8.3. In the first rounds of the game, how many people got positive profits? How many got negative profits? (Teacher can just ask them to put up their hands and get the general idea. Do the same thing for the second, the third, the second last and the last round. Students should see the declining number of farmers who got either positive or negative profit.) Why did your profits move towards zero as you continued to make your production decision? (Introduce the concept of long-run equilibrium with zero profits in markets to students.) What are the basic conditions to have such long-run equilibrium? (The main condition is the existence of free entry and exit. A positive profit is a signal for the entry of firms; a negative profit is a signal for the exit of firms. Therefore, in equilibrium, all firms should earn no profit. Teacher should tell students that the free entry and exit is one of the characteristics of perfect competition markets. Hence, in the long-run equilibrium, every perfect competition firm also earns zero profit.</p>	
Tools	<ul style="list-style-type: none"> ➤ Print out enough Table 3 for students 	
Definitions	<ul style="list-style-type: none"> ➤ Long run – a situation where a producer is able to vary all the factors of production. (Lam, 1996) ➤ Free entry and exit – a condition that firms can enter and leave the market freely without any restrictions. (Lam, 1996) 	
Past Experience	<ul style="list-style-type: none"> ➤ Author of the game found that students typically converge to long-run equilibrium with zero profits in each market in five or six rounds. It can take longer if there are more than 40 students. ➤ It is sometimes the case that some students will sit in the same market for the entire experiment. Such students may be disinterested or confused. The point is that such behavior does not affect the outcome of the experiment as 	

	<p>long as it is not pervasive.</p> <ul style="list-style-type: none"> ➤ Students observe that it only takes a few profit seekers to equalize profits across markets. This is an interesting point that the experiment allows students to discover on their own. 	
References	<ul style="list-style-type: none"> ➤ Experiment: <ul style="list-style-type: none"> ➤ Garratt, Rodd, summer 2000, A Free Entry and Exit Experiment, <i>Journal of Economic Education</i>, vol 31 (3), pp 237-243. ➤ Definition: <ul style="list-style-type: none"> ➤ Lam, P. L., 1996, <i>Advanced Level Microeconomics: Illustrations</i> Macmillan Publishers (HK) Ltd 	

Appendix

Materials for Teacher

Table 1	Demand Functions of Four Crop Markets
Table 2	Market Chart
Table 3	Farmer Profit Chart