
MarketSim – Simultaneous Play Version

Quick Start Manual

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Introduction

Welcome to MarketSim! The goal of this program is to ask you to be part of a simulated economy to help you better understand how economic systems work. You participate in MarketSim via the Internet.

MarketSim consists of two parts: Jeremy's Market and Adam's Market. In Jeremy's Market each student is responsible for a household that consumes and produces goods. You also will be able to trade with the households run by your classmates. Your goal is to try to pick a production and trading strategy that gives your household the highest possible level of utility.

In Adam's Market you will be responsible for both a household and a firm. In Adam's Market money is used to make transactions between firms and households. As a household, you need to decide how many hours you are going to work and what goods you will buy. As a firm, you need to decide how much labor time to hire, how much output to produce, and what price to charge. In the more complex versions of the simulation, you will also need to decide whether to make additional investments in your firm's capital and whether to switch industries. Your goals are to try to maximize your household's utility and the net worth of your firm.

Please note that in this version of the program you must remain logged into the simulation during the entire game and you must register for the game before it starts.

To play a MarketSim game you must be running the Microsoft Windows 98 operating system (or a later version of Windows) and you must access the site using Internet Explorer 5.x or later. Your browser must be set to allow pop-ups while on this site. Multiple users cannot access the game from the same computer. The home page of the site is: <http://marketsim.ysu.edu>; click on the "Play a game" link to register in a game.

If you need more information than is provided in this manual, please see the full version of the student manual or use the program's context-sensitive help system.

The MarketSim Project is supported by National Science Foundation Grant #0127362. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the authors and do not necessarily reflect the views of the National Science Foundation.

Jeremy's Market

I. Overview

- In Jeremy's Market you and your classmates are each responsible for a household, and your goal is to maximize the household's utility or happiness.
- Your household's utility is determined by your household's consumption of two goods and leisure time.
- The simulation is divided into periods; your instructor controls when the periods end. In each period of the simulation every household has use of some fixed number of hours. You can use the hours as leisure time or spend the time producing goods.
- You and your classmates will be divided into "attribute groups." All of the members of an attribute group have the same utility and production functions.
- At the beginning of each period, the number of units consumed is reset to zero and each household is given a new time allotment (usually 100 hours).
- When you produce units of a good or receive units of a good in trade, those units are added to your stock of that good. Units held in stock are units you own, but have not yet consumed. Units of goods that are not consumed in one period are carried over to the next period.
- Your utility is a function of the number of units you consume and the amount of leisure time you have in that period.
- All units of the goods are automatically consumed at the end of each period. You also have the option of consuming goods prior to the end of the period. A decision to consume goods cannot be reversed. Only units that are consumed will be used to calculate current utility.
- To trade goods, you can either accept an offer posted by another student or post your own offer and wait to see if another student accepts the offer.
- You can cancel an offer to trade if it has not yet been accepted by another student.
- Any offers that have not been accepted at the end of the period expire and are removed from the list of available offers.
- If a student makes an offer and then fails to keep enough units in stock to honor the offer, the offer will be removed and it will be recorded that a bad offer was made. Participants making bad offers may be penalized.
- It is possible to trade time. If you receive time in a trade you are essentially hiring another student to work for you, and you must choose what will be produced with the time. You cannot consume another student's time as leisure time.

II. Strategy Tips

- At the start of the game you have no idea what trades other participants are likely to accept. It is a good idea to initially produce relatively small amounts of both goods and offer to trade the good that you are better at producing.
- When barter is possible, try to get the same additional utility from the last dollar spent on each good given the implicit prices of the goods or the tradeoff between goods is the same as the relative prices.

III. Program Structure

Jeremy's Market consists of four pages which are summarized below. To change the page you are viewing, click on a link on the main menu on the left-hand side of the screen. If you click on the "Help" link you will see information about the page you are viewing.

- **Worksheet.** You will use this page to plan your strategy. This page will tell you what your utility will be with different combinations of goods and leisure without having to do the calculations yourself.
- **Actions.** On this page you actually indicate how much you will produce and consume. In addition you can accept offers and post offers.
- **Functions, Graphs.** Your production and utility functions are displayed on this page, as well as the functions for the other groups in your class. The page also displays graphs illustrating information about the simulation such as the rates at which goods were exchanged in the most recent trades.
- **User Record.** This page displays a summary of all the actions you have taken, the value of your utility, and the number of times you logged in.

For a detailed description of the contents on each page, go to the page and press the link marked Help.

Adam's Market

I. Overview

Both Households and Firms

- The simulation is divided into some number of periods; your instructor chooses when the periods change.
- Any offers that have not been accepted at the end of a period expire and are removed from the list of available offers.

Households

- Households receive utility from leisure and consuming two goods. The goal of the household is to maximize utility.
- Goods are consumed as soon as they are purchased. Households cannot resell goods after they have purchased them. Time not spent working for a firm is automatically consumed as leisure.
- Households start the simulation with some amount of cash specified by your instructor.
- At the beginning of each period, each household is allocated some number of hours that can be consumed as leisure or spent working for firms.
- Households can earn income by giving up some of their leisure time to work for firms.
- Your household “owns” your firm. If your firm earns profits, you can transfer some of the profits from the firm to your household.
- At the beginning of each period the number of units consumed is reset to zero. Each participant is given a new allotment of leisure time. Only cash can be carried over from one period to the next.
- The utility for each period is calculated at the end of the period. Total utility is equal to the sum of the utilities from the completed periods.

Firms

- Firms start the simulation with some amount of cash and some number of units of capital specified by the instructor.
- Firms can earn profits by producing output and selling it to households. The firm must buy labor from households in order to produce output.
- The amount of output produced is a function of current capital stock and the quantity of labor hired. Once labor is purchased, it is automatically used to produce output. The firm's labor time is reset to zero at the start of each period.
- Any unsold output in the firm's inventory is carried over into the next period, minus any depreciation in the inventory.
- Firms are able to distribute their profits to their household, in the form of dividends.
- The program calculates the firm's net worth, which is equal to the cash held by the firm and the value of the firm's inventory. In the long-run scenario the value of the firm's capital and bonds are also included.
- The firm's capital, minus depreciation, is carried over into the next period.

Features available in the long-run scenario

- Firms can purchase additional capital. When a firm buys capital, the capital will not have an effect on the firm's output until the next period. You cannot buy capital in the last period.
- Firms can choose to switch industries. If you do switch industries, your firm will produce the new product in the next period. When the change to the new industry occurs, all remaining inventory from your original industry will be lost. Also, your capital stock will decrease by a penalty.
- In one of the long-run scenarios firms can issue and purchase bonds. Firms may choose to borrow so they can make larger investments in capital. In the simulation only firms can issue new bonds (borrow money). Both firms and households can buy new bonds (lending money to the firm). Bonds can be resold. If the firm that issued the bond does not have enough cash to pay the face value of the bond, the program will confiscate enough inventory and capital from the firm to pay the face value and a penalty. The penalty is some percentage of the face value of the bond chosen by your instructor, the default is 20 percent.

II. Strategy Tips

Both Households and Producers

- If you have not switched pages for some time, you may want to refresh the page to see if any of your offers have been accepted. The program will not notify you of any accepted offers until you either click onto a different page or refresh the current page you are viewing.

Households

- At the beginning of the simulation, we don't know what wage rates firms will accept. Begin by offering a small number of units of labor for sale. That way, if the wage rate increases dramatically, you will not lose out by selling all your labor early at a low wage.
- Your total utility will be highest if you tend to spread your consumption more evenly over all of the periods.
- Remember to use the rule for utility maximization to help you decide what purchases to make.

Firms

- Remember your goal is to increase the net worth of the firm, which you can do by maximizing the firm's profits. To maximize your profits, produce up to the point where marginal revenue (MR) equals marginal cost (MC).
- Your production function will obey the law of diminishing marginal returns, so the output gained from hiring an hour of labor will always be less than the output gained from hiring the previous hour.
- Remember that the price of output might change over the course of a period, so do not count on being able to charge a specific price for huge units of output.
- Given that consumer income is limited, it is unlikely you will be able to sell all of your firm's output in one offer to a single consumer. Consider making multiple offers of smaller amounts.

- Recall that once every firm buys more capital, they will be able to produce more output with the same level of labor. This will affect the price of the output.

III. Program Structure

- **Consumer Worksheet.** You will use this worksheet to plan your strategy as a consumer. This page will help you to decide how many hours to work and how much of the two goods to purchase. None of the actions on this sheet will be recorded. Remember that all of the calculations are based on the expected prices and wages.
- **Consumer Actions.** This page is where you implement your strategy planned on the worksheet pages. You may post offers to sell labor, accept offers from the firms to purchase goods, and cancel offers that have not been accepted.
- **Consumer Bonds.** This page will only appear if your instructor has chosen the scenario with bond markets. Your consumer may purchase bonds (lend money), sell a bond you currently hold, and cancel offers that have not been accepted.
- **Firm Worksheet.** You will use this worksheet to plan your strategy as a firm. This page will help you decide how much labor to hire, whether you should purchase more capital, and how much output your firm will produce in order to maximize profits. None of the actions on this sheet will be recorded. Remember that all of the calculations are influenced by the prices you specify.
- **Firm Actions.** This is the page where you activate your strategy planned on the worksheet pages. You may purchase labor from the households, use the labor to produce output, and make and cancel offers to sell the output. You may also choose to distribute profits back to your household in the form of dividends. In later periods, you may also choose to buy capital or switch industries.
- **Firm Bonds.** This page will only appear if your instructor has chosen the scenario with bond markets. Your firm may purchase bonds (lend money), post offers to sell a bond (borrow money), sell a bond your firm currently holds, and cancel offers that have not been accepted. At the bottom of the page, there is a table that summarizes your firm's outstanding bonds.
- **Functions and Graphs.** The top half of the page displays your household's utility function, the utility functions of the other households, your firm's production function, and the production functions of firms in other industries. In the bottom half of the page is a graphing area and a dropdown menu. From the dropdown menu you can pick from a variety of graphs summarizing different results from the simulation. The information displayed includes information on prices, production, consumption, profits, and utility.
- **User Record.** This page displays a summary of all the actions you have taken, both as a consumer and a producer.

To change the page you are viewing, click on a link on the main menu on the left-hand side of the screen. If you click on the "Help" link you will see information about the page you are viewing. On the login page there is a button marked "New User Help", which also gives an overview of the program.