

The Apple Market with Taxes

Who Pays the Tax?

An experiment from the book

Experiments with Economic Principles

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Student's Manual

I. Instructions for participants

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[https:](https://econclassexperiments.com/experiments/taxmarket)

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You will be better prepared to participate in this experiment if you read these instructions and answer the warm-up exercises beforehand.

Please bring a mobile device with internet connection and an up-to-date browser. Make sure that Javascript is enabled and cookies are allowed (normally this is a default setting in many browsers). We recommend using Firefox. Do not use Internet Explorer. Make sure your battery is fully charged. Close all other apps and do not open them during the experiment.

A Introduction

There is a hint of frost in the air and the leaves are changing colors. You are at the Farmers' Apple Market to buy and sell bushels of apples. Today, the local authority has decided to collect a tax of €15 for each bushel of apples sold.¹

B Instructions to Participate

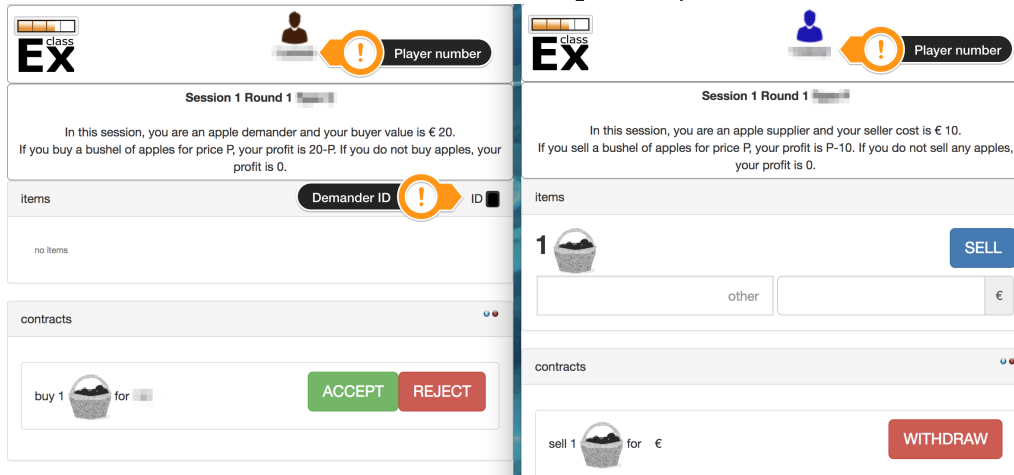
You will be either a supplier or a demander in each market session. (see Figure 1). Your objective is to make as much profit as possible. Profit will be measured in "laboratory currency units", though we will denote the units with the € sign.

There will be three market sessions today. You are likely to play a different role in each of the three sessions, but the overall distribution of buyers and sellers in the market is the same in all three sessions; that is, the total number of buyers with each possible Buyer Value and the total number of sellers with each possible Seller Cost, will be the same in all sessions.

¹If you played the [Apple Market Experiment](#) before, today's market session is a little more complex. Instead of just two types of buyers and sellers, there will be several types of each. This should make shopping a bit more interesting than before. It shares with the Apple Market that buyers and sellers can buy or sell at most one unit, and that the distribution of Buyer Values and Seller Costs are the same in all sessions.

B. INSTRUCTIONS TO PARTICIPATE

Figure 1: **Screen for Demander (left) and Supplier (right)**. If a supplier wants to sell a bushel of apples she enters the price and the ID of the demander. The demander can then accept or reject the offer.



In the **first session**, there are no taxes. If you are a supplier, you can sell at most one bushel of apples per round. If you sell a bushel of apples for a price P , and your Seller Cost is SC , then your profit is the difference, $P - SC$. If you do not sell, your profit is zero.

If you are a demander, you can buy at most one bushel of apples per round. If your Buyer Value is BV , and you buy a bushel of apples for a price P , your profit will be $BV - P$. If you do not buy, your profit is zero.

In the **second session**, *sellers* have to pay an excise tax of 15€ if they make a sale.² In this session, if you are a seller with Seller Cost SC and you sell a bushel of apples for P , then your profit on the transaction will be $P - SC - 15$.

In the **third session**, *buyers* have to pay a per unit excise tax of 15€ if they buy a bushel of apples. If you are a buyer with Buyer Value BV and you buy a bushel of apples for P , then your profit on the transaction will be $BV - P - 15$.

If you make no transactions at all, you don't have to pay a tax and you have no costs or revenue, so your profit is zero. Observe that you do not have to sell or buy, and that zero profits are better than losses.

Sellers and buyers must find each other and agree on a price. If they

²An excise tax is a per unit tax imposed on a particular good or service.

C. WARM-UP EXERCISES

reach an agreement, the seller should type the price and the buyer ID into her screen and click the "SELL" button. The buyer must accept the offer to finalize the contract. The sales contract is then displayed as accepted in the contract section.

Click [HERE](#) if you need information on how to trade in CLASSEx .

C Warm-up Exercises

After reading the instructions for this experiment, please check your understanding by answering the following questions and recording what you expect to happen. Answers to the warm-up exercises can be found at the end of the document [HERE](#).

W.1 Suppose that sellers have to pay a tax of 15€ when they sell a bushel of apples. If a supplier who has a Seller Cost of 5€ sells a bushel of apples for 25€ to a demander who has a Buyer Value of 45€, the supplier will make a profit of

and the demander will make a profit of

W.2 Suppose that buyers have to pay a tax of 15€ when they buy a bushel of apples. If a supplier who has a Seller Cost of 5€ sells a bushel of apples for 25€ to a demander who has a Buyer Value of 45€, the supplier will make a profit of

and the demander will make a profit of

W.3 You are a supplier with a Seller Cost of 15€. Sellers have to pay a tax of 15€ when they sell a bushel of apples. What is the lowest price at which you would not lose money by selling apples?

C. WARM-UP EXERCISES

W.4 You are a demander with Buyer Value of 30€. Buyers have to pay a tax of 15€ when they buy a bushel of apples. What is the highest price at which you can buy a bushel of apples and not lose money?

Before participating in an experiment, it is useful to think about what you expect to happen and to record your prediction. After the experiment, look back at your notes and compare your expectations with what actually happened. If you are surprised by the result, reflect on your priors and the theory and see if you can make sense of your new experience.

W.5 In the experimental market, would you predict that the 15€ tax paid by sellers in Session 2 will cause the average price paid by buyers to increase by more than 15€, less than 15€, or just about 15€?

W.6 Will demanders be better off if sellers pay the tax or if buyers pay the tax?

Answers to Warm-Up Exercises: W.1 5€ and 20€; W.2 20€ and 5€; W.3 30€; W.4 15€; W.5 and W.6 ask for your expectations.