INTRODUCTION TO STRATEGIC INTERACTIONS, DUOPOLIES AND COLLUSION: A CLASSROOM EXPERIMENT*

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ABSTRACT
This classroom experiment introduces strategic interactions and collusion in an environment where two producers are interacting in a market. It introduces the three classic duopolies: Bertrand, Cournot and Stackelberg, and compares the effects of competition versus collusion. The experiment is intended for use prior to presentation of the theoretical models, as it allows students to develop their understanding of duopolies during the game and then to compare this understanding with the theory. The use of this experiment allows the instructor to present the intuition behind strategic interaction in an attractive manner and to dissociate intuition from mathematical complexity.

Keywords: Experiment, Bertrand, Cournot, Stackelberg, Collusion.

JEL classifications: A22.

1. INTRODUCTION
Strategic interaction is a key concept that economics and business students must master in various microeconomics and industrial organization courses. When presenting strategic interaction, there is a significant increase in difficulty for students. Duopolies are typically an economics student’s introduction to strategic interaction and this topic often follows chapters on perfect competition and monopoly. When presenting monopoly and perfect competition, the mathematical

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resolution and intuition of both are straightforward. However, the mathematical resolution of duopolies is often confusing for students, especially in the Cournot and Stackelberg cases. Students need to acquire mathematical skills while gaining an understanding of the model to effectively select the right path of resolution. Indeed, it is the first time that they are required to use intuition to solve a model. At this point, students experience an increase in the complexity of the material which can decrease their motivation. Therefore, the chapter on duopolies is a pinnacle opportunity to encourage student interest in the material.

Simulating markets in class provides an attractive way for students to develop their knowledge and understanding. Holt (1999) explains that “one of the most exciting recent developments in the teaching of economics is the increased use of classroom exercises that insert students directly into the economic environments being studied”. Furthermore, the literature indicates improved achievement among students taught using experiments. Frank (1997) compared learning outcomes of a specific concept, for both students who participated in a classroom experiment and those who did not; he concluded that the participating students were more successful. Dickie (2006) and Durham, McKinnon & Schulman (2007) found similar results. Durham, McKinnon & Schulman (2007) also show that classroom experiments positively affect students’ retention of economic knowledge.

The experiment presented in this paper is helpful as it introduces students to duopolies through an interactive environment, where they can begin to acquire economic intuition behind strategic interactions in duopolies without being overwhelmed by the mathematics. This experience helps simplify the understanding of the mathematical resolution of the models. A key feature of the experiment is that it allows the separation of intuition and mathematical resolution in the learning process. Using this experiment addresses the two learning objectives in sequence instead of simultaneously.

In the mathematics education literature, it has been demonstrated that learning highly abstract concepts is facilitated by tangible applications. This explains the growing interest in developing new in-class approaches to mathematics which require students’ active

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1 Formal presentation of duopolies can be found in Cabral (2000).

2 See Giroud (2011) for more thorough details about this literature.
participation through hands-on activities. Bartolini Bussi (2009) discusses the benefits of using experiments in the learning of abstract mathematical concepts. In her paper, she observed that if the result of a problem is provided too early, students’ attention is focused on the final result rather than on the dynamic process of resolution. This reinforces the need to experiment with concepts before providing students with the mathematical resolution. Jahnke (2007) also suggests that results coming from empirical evidence, such as an experimental approach, can convince students more than rigorous proofs.

Additionally, Becker & Watts (1995), Durham, McKinnon & Schulman (2007) and Emerson & Hazlett (2012) indicate a connection between the use of experiments and improved student engagement. Classroom experiments can improve engagement because students see the experiment as a game rather than a lecture. Regardless, while “playing the game” they are being exposed to an economic situation from which they can develop intuition and understanding of the models to be presented in class.

There is currently an important debate in the literature on the use of paper-based vs computerised experiments in economics education. Computerised versions of oligopoly markets are available on different on-line platforms and provide a decent alternative to paper-based experiment. One benefit of computerized versions is the reduced amount of administration for the instructor. Carter & Emerson (2012) investigated both methods and their results suggest that student achievement is comparable in both cases; however, students tend to view in-class experiments more favourably than computerized experiments. In other words, using paper-based experiments effectively reinforces engagement and motivation.

Earlier articles such as Meister (1999), Beckman (2003), Ortmann (2003) and Giles & Voola (2006) focus on Bertrand and/or Cournot duopolies and/or involve some degree of mathematical complexity. The game presented in this paper is designed to deal with a broader set of duopolies and can easily be adapted to multiple contexts. It offers a flexible learning environment, free of mathematical complexities. This is particularly helpful in introductory courses including: *Principles of Microeconomics*; *Introduction to Industrial Organization*; and *Managerial Economics*. It may also serve as a review for intermediate level courses.
During this experiment, groups of students are divided to play the roles of different firms. They determine how firms make production and pricing decisions in an environment where they and their competitor are influencing market conditions. This creates an opportunity for students to discuss strategies in teams, stimulating understanding and learning. Students can compare the different implications of the potential structures of various duopolies such as Bertrand, Cournot, Stackelberg and Collusion.

Brauer & Delemeester (2001) identify a potential risk to using classroom experiments in that students may not play the game seriously and could, therefore, devalue the use of such experiments. To avoid this, students’ performance during the game will account for 1 percent of their final grade. Students are also required to write an individual assignment for an additional 1.5 percent of the final grade. In total, therefore, the game determines 2.5 percent of students’ final grade. Furthermore, it is possible to give immediate reward for firms earning the highest profits during the experiment. A piece of candy for every treatment winner and a gift card for the team having the largest profits overall can serve as immediate incentives. Small reward can create a friendly competition and makes the students even more invested in the experiment.

In the sixth chapter of Holt (2007), it is mentioned that when players are able to recall the history of play, which they can in this experiment, chances of tacit collusion are increased. I did not experience much of this problem while running this experiment. My understanding is that students understand that each treatment is played just a few times and they usually focus on short-term profits. An instructor, who is concerned about tacit collusion, can rematch firms after each period to severely decrease the likelihood of tacit collusion.

Although it is difficult to measure the precise impact of this experiment on the comprehension of economics students, improvements have been observed. More specifically, in Fall 2014 and Fall 2015, I collected data on the ability of students to utilize the correct method of resolution to solve a Cournot duopoly and a Stackelberg duopoly during the midterm exam following the experiment. Table 1 presents this data. In Fall 2014 and Fall 2015, 27% of the students did not participate to the experiment. This gives an opportunity to compare results of students who did and did not

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3 See below for assignment details.
While vertically comparing success rates of students who attended and who did not attend would be purely informative, we can learn from comparing horizontally success rates between Cournot and Stackelberg duopolies since they require the same ability. Students that attended the experiment had a success rate of 89% in both the exercises about Cournot and Stackelberg duopolies, while students who did not attend had a success rate of 73% for Cournot and 50% for Stackelberg. This comparison suggests that students who participated were more able to differentiate and solve accurately the Cournot and Stackelberg mathematical resolutions.

The remainder of the paper details the following: Section 2 provides a description of how to include this experiment in a lesson plan; Section 3 describes the experiment; Section 4 presents the mathematical resolution of the models; Section 5 describes some advantages associated with this experiment; and Section 6 concludes.

2. LESSON PLANNING

This experiment has been used multiple times in an Industrial Organization and Regulation course, where the study of duopolies is done after monopoly. Before taking this course, students normally have completed Principles of Economics courses. In my Industrial Organization course, the study of duopolies typically requires three lectures for a total of four and a half hours of classroom time. During the first lecture the experiment is conducted. After completing the experiment, students are required to prepare an individual assignment to be submitted at the beginning of the second lecture. This

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One can argue that the distribution of ability is not the same when considering students attending and not attending the experiment.

Note that I do not discuss collusion in the same chapter as duopolies.
assignment requires students to amalgamate the intuition developed during the experiment. The assignment consists of a two page report guided by the following questions:

- For each treatment, describe how your strategy evolved. What would you do differently now?
- How did you assess your opponent? Did the concept sharing of demand influence your decision making?
- For every treatment, should the strategy of each firm be the same. Why or why not? Explain your observations.

The first two sets of questions are designed to illustrate the main intuitions while the last question is to verify the students’ understanding of the difference between simultaneous and sequential games. The assignment also assists the instructor in detecting potential misunderstandings of the proper intuitions. It provides an opportunity to discuss directly with students their personal challenges and to identify gaps in their learning prior to the exam.

The second lecture is used to present theoretical models and to create a discussion of the experiment based on the assignment questions. The third lecture is then devoted to exercises which include the mathematical resolution of duopolies. Data from the experiment can be used to create these exercises. Students’ confidence improves when they realize the solution of both the experiment and the mathematical resolution are the same.

3. THE CLASSROOM EXPERIMENT

For this experiment, the class is separated into groups (firms) of two to five students. To keep the experiment manageable, use no more than eight firms playing four markets. For larger classes, teaching assistants can support the management of additional markets. Each firm receives an instruction sheet and firm ID comprised of a letter and a number. The letter represents the market in which they will be competing and the number represents the firm. For example, A1 represents firm 1 in market A; and A2, firm 2 in market A. The only numbers used are 1 and 2 since the game is created for duopolies, however it is possible to create multiple markets if necessary. Placing

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6 In simultaneous games, firms should have the same strategy, while, in sequential games, they should not.
7 Typically, I ask students to form themselves groups before distributing the instructions of the experiment.
8 See the instruction sheet in the Appendix.
all firms designated with 1 on the left side of the classroom and all firms designated with a 2 on the right side prevents unauthorized discussion.

Before starting the experiment, read the instructions to the students and present them with the sheet used to record the results (these are provided in the Appendix). Allow for questions to ensure that students understand all the instructions and how to record the results. To remove any mathematical complexity, the demand schedule takes the form of a table in the instruction sheet. It is important to emphasize that firms share the same market demand with their competitor. The experiment consists of four treatments corresponding to the Bertrand, Cournot, Stackelberg and Collusion cases, and it is a good idea to review the instructions specific to the treatment each time it changes.

Each treatment includes numerous market periods and represents a specific market structure. Depending on the time allowed for the experiment, the number of periods within each treatment may vary. It is best to play at least two periods in each treatment and to stop playing when markets have converged to the equilibrium. This typically takes two to four market periods depending on the treatment.

A specific treatment may be targeted to the outline of the class as they are played independently. To keep the class interested, decisions made by each firm can be displayed on the board. Also, quick market periods are preferred. It is helpful to have an online timer projected on the screen in the classroom to keep track of the length of the periods.

Also, when preparing the experiment, the instructor may want to adjust the record sheet in order to predetermine the number of market periods to be played. Table 2 shows the results from one particular experiment I conducted in class.

(a) **Bertrand**

The first treatment is a simulation of a Bertrand competition between two firms. The firms have to simultaneously determine the price at which they sell a product on the market. The firm with the lowest price wins the entire market. If both firms price the same way, they will have to share the market half and half. The initial period for Bertrand is limited to three minutes, with subsequent periods of two

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9 This is also provided in the Appendix. This is similar to the demand schedule used in Holt (2007), chapter 6, and Badasyan et al. (2009).

10 Many free timers are available online.

11 See record sheet in appendix.
Table 2: Results from a Classroom Experiment

<table>
<thead>
<tr>
<th>Period</th>
<th>Treatment #</th>
<th>Q1</th>
<th>Q2</th>
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<th>Profit 2</th>
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</table>

minutes each. Firms should use this time to determine the price. By the end of the period, they must have a price written on a small piece of paper with their firm ID. The instructor collects the papers and displays the prices on the board. Firms, then have enough information to calculate profits acquired during the period. Displaying profits on the board ensures information is the same across firms and students are documenting accurate calculations on their record sheet. Once record sheets are completed, another period can begin and periods are repeated until the end of the treatment. This treatment is illustrated by the first three periods in Table 2.

(b) Cournot

The second treatment is a simulation of a Cournot duopoly. Firms simultaneously determine the quantity of a product that they will offer on the market. The total quantities produced by firms for the market are tallied to determine the price using the demand schedule outlined in the game instructions. For Cournot, the initial period is three minutes with subsequent periods of two minutes each. Firms must use

\[12\] The number in parentheses corresponds to the price proposed by the firm that does not supply in a Bertrand competition if any.
this time to determine the quantity of product that they will supply on the market. At the end of the period, they must write the quantity on a small piece of paper with their firm ID. The instructor again collects these papers and displays quantities and prices on the board. The firms then have enough information to calculate profits acquired during the period. Once record sheets are completed, periods are repeated until the end of the treatment. This treatment is illustrated by periods 4 to 6 in Table 2.

(c) Stackelberg

The third treatment is a simulation of a Stackelberg duopoly. Firms sequentially determine the quantity of a product that they will offer on the market. Stackelberg involves a different timeline. Firm 1 determines quantity first. Then, firm 2 observes firm 1’s quantity and determines its own quantity of the product based on this information. For this treatment, each firm should be provided two minutes to establish their quantities. Firm 1 uses this time to determine the quantity of product that they will supply on the market. At the end of this time, firm 1 must have a quantity written on a small piece of paper with their ID. The instructor collects their papers and transfers the quantities to the board. Once firm 2 can see the quantity, the time begins. At the end of this time, firm 2 must have a quantity down with their firm ID. The instructor once again collects these and displays the quantities on the board. The firms then have enough information to calculate profits accumulated during the period. Once record sheets are completed, the next period can begin. This treatment is illustrated by periods 7 to 9 in Table 2.

(d) Collusion

To ensure order during this treatment, firms should choose a “diplomat” before beginning. The role of the diplomat is to negotiate an agreement with the other firm. Once each firm chooses, the fourth treatment can start. The fourth treatment is a simulation of a Cournot duopoly where firms may decide on a common strategy. Firms strategically determine the quantity of a product that they will offer on the market. For this treatment, a period of two minutes is given for firms to decide on the proposal they make to the other firm. Then, diplomats meet in the centre of the classroom to negotiate an agreement for two minutes. Then, another two minutes is given to discuss within the firm the quantity to produce. Firms determine
whether they honour their agreement. At the end of the period, all firms must have a quantity written on a small piece of paper with their firm ID. The instructor will take all the pieces of paper and document the quantities on the board. Firms, then have enough information to compute profits collected during the period. Once record sheets are completed, another period can begin; this is repeated until the end of the treatment. This treatment is illustrated by periods 10 to 12 in Table 2.

4. RESOLUTION OF THE MODELS

Assume a market where two symmetric firms are supplying the same good. The inverse demand function for the good is \( p = 28 - Q \) and the total cost for firm \( i \) is \( TC_i(q_i) = 4q_i \) for \( i=1, 2 \). Each market simulated in the experiment is based on this demand function which provides a good basis for comparison.

(a) Bertrand

The Bertrand equilibrium predicts that when firms are symmetric, the price equals marginal cost. Therefore, using the data on which the experiment is based, \( p = 4 + \varepsilon \) where \( \varepsilon \) represents the smallest monetary denomination. In the context of this experiment \( \varepsilon = 2,^{13} \) and students should end up with a price of \( p = 6 \).

(b) Cournot

Given our context, profits of the firms in a Cournot competition are:

\[
\begin{align*}
\pi_1 &= (28 - q_1 - q_2) q_1 - 4q_1 \\
\pi_2 &= (28 - q_1 - q_2) q_2 - 4q_2
\end{align*}
\]

Profit maximization yields the best response functions for both firms:

\[
\begin{align*}
q_1 &= 12 - q_2 / 2 \\
q_2 &= 12 - q_1 / 2
\end{align*}
\]

We can then derive Cournot quantities:

\[
\begin{align*}
q_1 &= 8 \\
q_2 &= 8
\end{align*}
\]

Inserting these quantities in the inverse demand yields the price on the market as \( p = 12 \) and the profit of each firm will be \( \pi_1 = \pi_2 = 64 \).

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13 See the market demand schedule in the Appendix.
During this treatment, it may take students a few periods to accurately identify the correct quantities.

(c) Stackelberg
The timeline of the Stackelberg duopoly played in this experiment is that firm 1 chooses first and firm 2 second. We begin with the best response function of the second firm that was calculated in the Cournot treatment:

\[ q_2 = 12 - q_1 / 2 \]

We next insert the value of \( q_2 \) in firm 1’s profit function, yielding:

\[ \pi_1 = 12q_1 - q_1^2 / 2 \]

Firm 1’s profit maximization leads to the value of \( q_1 \). Inserting this value for \( q_1 \) into the best response function of the second firm yields \( q_2 \). So, the Stackelberg quantities are:

\[ q_1 = 12 \]
\[ q_2 = 6 \]

Inserting these quantities into the inverse demand function yields the price in the market as \( p = 10 \). Firm 1 will make a profit of \( \pi_1 = 72 \) and firm 2 will make a profit of \( \pi_2 = 36 \). It should be remembered that it may take students a few periods to accurately identify the correct quantities.

(d) Collusion
When students are required to negotiate an agreement with the competitor, they must weigh the benefits of establishing an agreement against competing in a Cournot duopoly (\( \pi_1 = \pi_2 = 64 \)). If an agreement is strategically negotiated, each firm will produce 50% of the monopoly quantity and will, therefore, split monopoly profit 50/50. In this market, a monopoly would have the following profit function:

\[ \pi_1 = (28 - Q)Q - 4Q \]

Profit maximization yields the following values:

\[ Q = 12 \]
\[ p = 16 \]
\[ \pi = 144 \]
If the firms share the monopoly profit, each firm obtains a profit of 72. When comparing the potential profits, it appears that collusion is more beneficial than Cournot. However, firms have the option to renege on their agreement. Firms should use their best response function and the information that the other firm is producing half of the monopoly quantity, to determine whether to honour the agreement. Without loss of generality, firm 1’s decision can be used as an example to determine the best strategy. Firm 1’s best response function is 

\[ q_1 = 12 - \frac{q_2}{2}, \]

and if firm 1 is convinced that firm 2 will be producing \( q_2 = 6 \), then firm 1 should renege on the agreement by producing \( q_1 = 9 \). This would result in firm 1 making a profit of 81.

The theory predicts Cournot should be played at every round in a finite environment. To maintain collusion, an indefinitely repeated game and a credible threat are necessary. Students will usually collude as long as neither firm disregards the agreement. If a competitor has reneged on their promise, students typically produce the Cournot quantity in the subsequent period as illustrated in the last row of Table 2. Since I have never been able to play this treatment more than 3 consecutive times, it is hard to make strong conclusions about the type of strategy students are using. However, I have never seen students colluding after being reneged. This tends to reflect a grim strategy.

5. PEDAGOGICAL ADVANTAGES

As explained in the introduction, many pedagogical advantages come with the experiment. Also, this experiment can be used to reach additional pedagogical goals. Usually, differentiating between Cournot and Stackelberg mathematical resolutions is one of the most significant difficulties students have. These resolutions are very similar and therefore can be a source of confusion. The experiment improves students’ understanding of the mathematical resolutions. It provides them the foundational reasoning and dynamic intuition required to mathematically solve duopolies. Therefore, instructors can refer to the experiment when explaining the different steps. This analogy helps the student to link the mathematical steps with their concrete experience of the steps.

Students commonly ask “how do we know when to solve the system of the best response functions; or when to insert firm 2’s best response function into firm 1’s profit function?” This question refers to the selection of the steps needed to solve Stackelberg and Cournot
duopolies. During the experiment, students have already experienced the correct steps. This improves their understanding of the differences between simultaneous and sequential decisions, therefore providing them the ability to use intuition to select the correct resolution. Having the ability to build on this experience simplifies the learning and the instructor ability to clearly answer this question.

Another commonly asked question is “why should firm 2’s best response function be inserted in firm 1’s profit function?” This question refers to the Stackelberg duopoly. Prior to determining the quantity to be produced, the firm that moves first must predict how the second firm will respond. This is precisely what students have experienced during the game. When presenting the Stackelberg duopoly in class, it is helpful to ask a student from a firm 1 to explain how his/her firm determined the quantity during the game. This reminds the class of the right intuition in the students own words and provides an experiential explanation. Highlighting the link between the resolution and the experiment facilitates students’ understanding.

Solving in class the models presented in section 3 improves students’ confidence in finding the resolutions. The experiment has been designed so the practical results will correspond with the mathematical results. In other words, students will find the same numbers when mathematically solving the model as were found during the game. This validates the model for students and increases their confidence in the material.

Finally, this experiment provides intuition useful for the chapter on collusion. Typically, at least one group will renege on the agreement which introduces students to the limitations of collusion. Students already know what collusion is, and they usually see collusion as something easy to maintain. The experiment will challenge this belief. It is also a simple way to introduce repeated games with a predetermined endpoint. During the collusion treatment, students usually will set up and maintain a collusion until a firm discovers it is in the firm’s best interest to break the agreement. This is similar to the way we demonstrate that collusion is inappropriate with a predetermined endpoint. At least one player will not benefit from collaborating in the last period and therefore the agreement will not be maintained in the penultimate period and repeating this pattern back to the first period.
6. CONCLUSION
This in-class experiment is simple for the instructor as it does not require much material because it is not a computer-based experiment. It also does not consume much class time as it is designed to last between 90 and 120 minutes depending on the time that is available. The paper also explains how this experiment can be introduced in a lesson plan for the study of strategic interactions through duopolies. It is especially designed for intuition assimilation and it creates the time for students to understand the dynamical process before receiving the solution. Playing this experiment also offers munitions to the instructor to answer the most common questions that students have by referring to their experience during the game. This experiment provides students an environment free of mathematics where they can experience and understand strategic interactions and duopolies. It is an asset when teaching these concepts as it particularly assists students later on when students are required to understand steps of the mathematical resolutions.

This experiment is also designed to allow for clear comparability of the outcomes of the three common forms of duopolies, namely Cournot, Bertrand and Stackelberg, as well as Collusion. This is particularly helpful later when theoretically demonstrating these differences; the instructor can refer to students’ experience to justify the pertinence of the theory.

APPENDIX: IN-CLASS GAME INSTRUCTIONS FOR STUDENTS

Overview of the Experiment
This experiment is intended to expose you to strategic interactions, duopolies and collusion. You will be expected to explain the process used to determine your actions and describe the steps of your reasoning.

Each team will be assigned the role of a firm. As a firm, you will sell your products to customers. Firms will be matched with one another at the start of a game and will remain matched with this firm throughout the game. Each firm will be assigned a number either 1 or 2 allowing you to compete in a duopoly market.

Do not forget, your goal is to maximize your firm’s profits!
Your Firm
Your firm is producing the same good as your competitor. The cost of producing each unit is 4$ and there is no fixed cost associated with the production of the good.

Your profit or loss is evaluated by calculating the difference between the price and your unit cost multiplied by the number of units your firm sells to customers.

For example, if the price is $12 and your quantity sold is 6 units, your profits would be:

\[(\text{Price} - \text{Unit Cost}) \times \text{Quantity} = (\$12 - \$4) \times 6 = \$48\]

Your Competitor
Your competitor is producing the good for the exact same cost as your firm.

Market Demand
The demand for the good is provided in the following demand schedule:

| Price ($) | 28 | 26 | 24 | 22 | 20 | 18 | 16 | 14 | 12 | 10 | 8 | 6 | 4 | 2 | 0 |
|-----------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| Qty       | 0  | 2  | 4  | 6  | 8  | 10 | 12 | 14 | 16 | 18 | 20 | 22 | 24 | 26 | 28 |

When each period is concluded, please record the price, the quantity (number of unit sold) and your profit, on the record sheet provided.

Your Role
Your role is to make strategic decision for your firm to maximize profit. Do not forget that your competitor also influences the market.

The experiment consists of 4 treatments of multiple market periods. The market structure will change in each treatment.

First Treatment:
At the beginning of each period, each firm must choose its price for the product. If your price is higher than your competitor’s price, you will not sell any goods. If your price is lower than your competitor’s price, your goods will supply the whole quantity demanded at this price. If your prices are equal, you will share the market 50/50 (each supplying half of the quantity demanded). At the conclusion of each period, please calculate your profit.

Second Treatment:
At the beginning of each period, each firm must choose its quantity to be sold. You must combine your quantity with the quantity of your competitor
and find it in the demand schedule to determine the price on the market. At the conclusion of each period, please calculate your profit.

**Third Treatment:**
At the beginning of each period, firm 1 chooses a quantity. Firm 2 chooses its quantity based on the quantity produced by firm 1. You must combine your quantity with the quantity of your competitor and find it in the demand schedule to determine the price on the market. At the conclusion of each period, please calculate your profit.

**Fourth Treatment:**
Before beginning this sequence each team must choose a “diplomat”. The role of the diplomat will be to negotiate an agreement with the other firm. At the beginning of each period, diplomats can negotiate an agreement in term of quantities to be produced. Then, each firm must choose its quantity to be sold. If you have an agreement with your partner, you can decide to either honor or disregard the agreement. You must combine your quantity with the quantity of your competitor and find it in the demand schedule to determine the price on the market. At the conclusion of each period, please calculate your profit.

**Market Information**
After each period, the price, the quantities sold in the market and the profits for each of the parties will be displayed on the board.

Any Questions?

<table>
<thead>
<tr>
<th>Record Sheet</th>
<th>Firm Number:</th>
<th>Teammates:</th>
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REFERENCES